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ABSTRACT

In order to bring about some continuity and coherence among the various English for Special Purposes (ESP) courses at the Universidad Simon Bolivar, a systematization project was undertaken. The purpose was to provide general guidelines for the production and future revision of materials while taking into account the specific characteristics of each course. The rationale behind and steps involved in the project are described in the following chapters: (1) "Theoretical Considerations about English for Specific Purposes," by Nora Soto-Rosa de Villoria and Sonia Villegas de Rajani; (2) "Needs Analysis-First Step in ESP Course Design," by Ana Maria Rajkay de Dolanyi; (3) "The Objective Experience in 'an Experiment in Systematized Course Design for ESP at the Universidad Simon Bolivar,'" by Sharon Owen de Ross-Jones; (4) "Materials Production: A Necessary Task," by Dolores N. Curiel; (5) "Testing in ESP: An Eclectic Approach," by Donna de F. Archibald; (6) "Procedures to Follow in the Evaluation of ESP Courses," by Genoveva Llinares de Alfonzo; and (7) "The Method or the How To in ESP Courses," by Sonia Villegas de Rajani and Nora Soto-Rosa de Villoria. Each chapter concludes with a bibliography. (EKN)

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AN EXPERIMENT IN SYSTEMATIZED COURSE DESIGN FOR ESP AT THE UNIVERSIDAD SIMON BOLIVAR

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INTRODUCTION

1. Rationale

It is well known that since World War II the technological and scientific process has undergone rapid development. Consequently, the amount of information originating from this process is so great that the use of a translator in every linguistic exchange is now impractical. Moreover, the number of languages and translators needed would exceed the possibilities of any country not only in the economical aspect but also from the point of view of human resources. Translators would also have to be highly competent both in the language itself and in the scientific or technical area to which the material belongs:

> "...specialized translating involves much more than the mechanical looking up of 'equivalents' of the special terms in dictionaries...it is, or should be axiomatic, that nobody can properly translate what he does not understand; hence satisfactory technical translation can only be done by someone with the requisite technical knowledge and practice in technical reasoning, to follow technical arguments in the required speciality and to bridge over gaps in such an argument the kind of competence required to do this depends not only on the nature and subject matter of the original text, but also on the purpose of the translation and on the kind of reader for whom it is intended.
> In order to translate papers written by and intended for scientists engaged in original research at the frontiers of knowledge, the translator must himself be familiar with those frontiers."
>
> (Mackay and Mountford, 1978, p.12)

In our Spanish speaking country, Venezuela, English is the second most important foreign language due to the fact that a great deal of the scientific, economic and commercial exchanges take place with English speaking countries. English plays an important role in the transfer of technology. Since Venezuela is a developing country in the industrial,scientific and technological areas, we must rely on foreign technology and apply it to our needs. Not only is English needed for this application to be effective, but also to communicate the contributions of Venezuelan researchers and developers to the international scientific community.

Given that technology transfer is understood as a bidirectional process, it can be seen that the Venezuelan professional requires a high level of linguistic competence. By linguistic competence we mean the individual's ability to use language to communicate effectively. When we talk about increasing linguistic competence we imply that, as teachers, we must increase the student's knowledge and use of English so that he can effectively carry out the communicative activities of the professional -to-be.In doing so, it becomes important to take into account the linguistic and conceptual knowledge of the individual in his/her own language so that he/she can transfer it to the target language. According to Allen and Widdowson this "information transfer...is based on the fact that the processes and procedures of science are the same no matter what the mother tongue of the scientist concerned is.

Likewise, scientific discourse represents a way of conceptualizing reality and a way of communicating which must, if it is to remain scientific, be independent of different languages and different cultures." (Mackay and Mountford, 1978, p. 13)

It is during the university years that the individual is most consistently subject to a study routine and discipline and it is also the period when he/she is more aware of the utility and need of English as a tool for his/her academic and professional improvement. The Universidad Simón Bolivar is an institution in which the academic and research activities are of a scientific and technological nature; its activities are enriched by the exchange of information with other national and international learning centers. Our student is in the process of academic and personal development. He/she is dedicated to his/her studies and motivated by a rigorous academic system that creates an environment of positive competition. In order to graduate as a well-qualified professional, the student needs English to have access to the literature in his/her specific field of study.

The Language Department at the USB offers a one-year general EST course as well as a post-first year program of ESP for some fields of study and courses in English literature and culture for more advanced students. The first year of English is required for all students enrolled at the university with the exception of those students who are fluent in the language and are able to pass an exemption examination. At the present, the ESP courses are offered in the following fields of study: Architecture, Biology, Computer Science, Electronic Engineering[1], Mathematics and Urban Planning. In some cases, these courses are part of the course requirements the students have to complete, and in others they are elective. Some courses have a duration of one trimester, while others require three trimesters to complete.

2. A Systematized Approach to ESP Courses at the USB

2.1 Background

In October 1979, four professors[2] of the Language Department of the University presented an internal report on the ESP courses then being offered for some professional areas. The report identified certain problems in connection with these courses and made some recommendations as to how a solution might be sought within the framework of recent investigation in the field of ESP. The origins of the problems identified were linked specifically to the circumstances in which the courses were conceived and designed.

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[1] In Venezuela, a distinction is made between Electronic and Electrical Enginnering. Due to differences in pensum they are considered two different specializations.

[2] Nora E. Soto-Rosa de Villoria, Genoveva Llinares de Alfonzo, Sonia Villegas de Rajani and Enrique López Contreras.

As a rule, courses were created due to the initiative of the coordinators for the professional areas who would communicate their wishes to the Department which, in turn, would appoint a particular professor to be responsible for designing and teaching the course. As a result, each ESP course became identified with one individual and the courses themselves would reflect the very different approaches of these individuals. In many cases, this made substitution extremely difficult and if, as was sometimes necessary, a new professor had to teach the course, there would be no continuity with the way it had been taught previously since the incoming professor would tend to adopt a different approach.

Besides creating discontinuity between courses from one academic term to another, the personalized approach that was evident in these courses hampered meaningful evaluation of the global ESP program. Another inconvenience was the duplication of efforts engendered by the isolation in which these courses were developed. Moreover, in the absence of firmly established guidelines, the influence of the coordinators was all too evident in some courses which were assigned the essentially limited role of reviewing, in English, subject matter already dealt with in the students' specialty courses.

2.2 The Project

A general recognition of the need of a more systematized approach became evident in order to establish common goals and common procedures for attaining them. Yet, in view of the specific character of each ESP course, it remained to be seen whether, and if so to what extent, systematization of these courses could in fact be achieved. A project was therefore undertaken as a means of ascertaining the feasibility of this proposal as well as the limitations attendant on its implementation. It was also realized that there should be coherence and continuity, not only among the so-called "ESP courses", but also between these as a group and the first-year general EST program.

Consequently, a review of the most recent contributions to applied linguistics was initiated, with emphasis on bibliography published in the field of ESP. Teachers in the ESP section[3] of the Department consulted bibliography available locally, along with material brought back by a member of the group[4] who had attended the "First TESOL Summer Institute Meeting" at UCLA in that year (1979). In February 1980, a number of professors[5] attended the "Primer Seminario de la Facultad de Humanidades y Educación de la Universidad Central de Venezuela sobre la Enseñanza de Inglés para Fines Específicos". These events provided some very relevant additions to our library. This was followed by a course in "Enfoques Comunicativos en la Enseñanza del Inglés como Lengua Extranjera" taken at the Instituto Universitario Pedagógico from March to July 1980 by three members of the group[6] who simultaneously organized an internal seminar in the Department for the benefit of the other members. Since the aim of the seminar was precisely that of developing a systematized approach to the development of the courses falling under the aegis of the ESP section, the activities were centered around the distribution of bibliographical material in ESP followed by the discussion of key topics encountered in this bibliography.

---

[3] Genoveva Llinares de Alfonzo, Donna De Freitas de Archibald, Dolores Raventós de Castro, Dolores Nachman Curiel, Ana María Rajkay de Dolanyi, Sonia Villegas de Rajani, Sharon Owen de Ross-Jones and Nora Soto-Rosa de Villoria.

[4] Nora Soto-Rosa de Villoria.

[5] Genoveva Llinares de Alfonzo, Sonia Villegas de Rajani, Sharon Owen de Ross-Jones and Nora Soto-Rosa de Villoria.

Finally, on the basis of information provided by this process of theoretical research, the decision was made to adopt aspects of the communicative-functional approach, with its emphasis on learner-based needs translated into relevant language skills, as a frame of reference for the design and teaching of ESP courses. The steps that were followed adhere to the procedure recommended for implementing a systems approach in communicative syllabus design of ESP courses. (Munby, 1978)

---

[6] Dolores Nachman Curiel, Sonia Villegas de Rajani and Nora Soto-Rosa de Villoria.

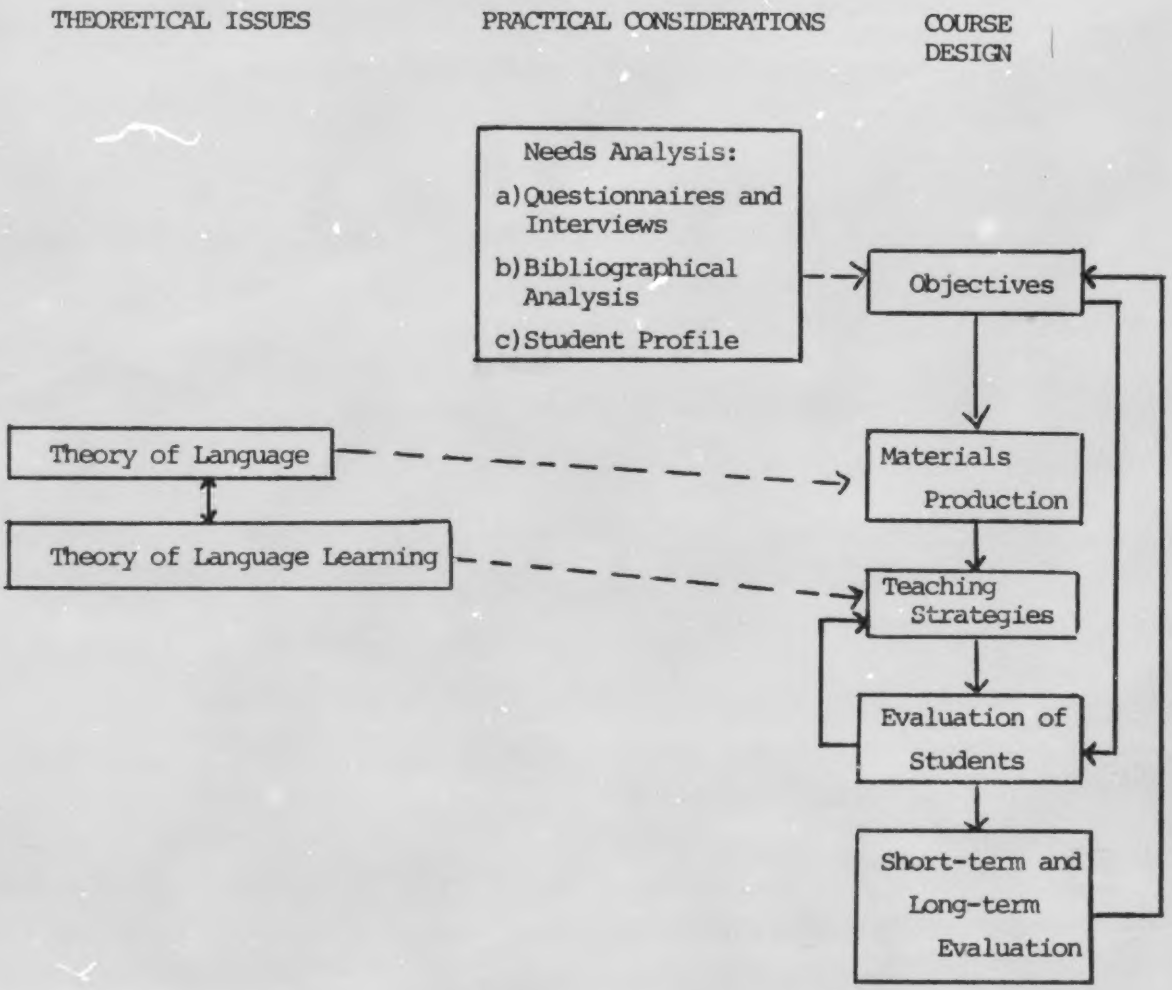
First, a theoretical framework was designed to serve as a reference for the rest of the project. Certain basic concepts were adopted in relation to the teaching of English for Specific Purposes, the communicative approach and the teaching of reading for Science and Technology. These concepts were adapted to our situation, taking into consideration the student characteristics and our principal objective, the teaching of reading.

In order to determine the needs of the students, the coordinators of the various fields of study were interviewed as were the professors of the different courses given within these fields of study. A questionnaire answered by the students, and a student profile were prepared for each field of study at this level. In addition, a bibliographical analysis was made of the material which these students must handle throughout their studies. Based on this information, priorities were established as to the fundamental skill, reading, as well as to the rhetorical language functions most frequently used in each field of study considered. The teaching objectives were subsequently elaborated, these having been formulated according to the student characteristics and needs. For this formulation we referred to specialized writers both in the field of objectives and in the teaching of foreign languages for specific purposes.

Taking as a point of departure the results of the needs analysis and the objectives formulated for each of the fields of study considered, teachers used authentic materials (defined as the type of materials the student would have to deal with in his/her specialty area)as a basis for producing exercises highlighting the discourse functions and related language features selected for study in a particular unit. If appropriate "readymade" materials were available, they were utilized. But this was the exception and not the rule. Concurrently with materials production, work was done in the area of testing. At the same time evaluation of teaching and testing materials was being carried out.

Our main purpose is to use the results of all these analyses to establish, while taking into account the specific characteristics of each course, general guidelines for the production and future revision of our materials. The last part of our project includes conclusions and suggestions for further research which we hope will reflect as closely as possible the real needs of our students and courses. It should be pointed out that research and production of materials and evaluation (both for testing and course evaluation) have been carried out simultaneously. Thus the materials which have been developed according to specific objectives formulated are not necessarily the definitive ones. Our tests and quizzes have also undergone a similar process. We feel, however, that the framework developed has been valuable as well as practical.

APPENDIX 1


THEORETICAL ISSUES
PRACTICAL CONSIDERATIONS
COURSE DESIGN
Needs Analysis:
a) Questionnaires and Interviews
b) Bibliographical Analysis
c) Student Profile
Objectives
Theory of Language
Theory of Language Learning
Materials Production
Teaching Strategies
Evaluation of Students
Short-term and Long-term Evaluation

(Candlin , Kirkwood , Moore , in Mackay, 1978, p.191)

CHAPTER I

THEORETICAL CONSIDERATIONS ABOUT ENGLISH FOR SPECIFIC PURPOSES

Nora Soto-Rosa de Villoria
and
Sonia Villegas de Rajani

1. English for Specific Purposes and Language Teaching

In this first section, it is important to define more precisely what is meant by the term ESP, how it has developed and how it relates to the more general field of Teaching English as a Foreign Language.

In this era of increasing information exchange in all areas of human endeavour, the tendency to specialization of knowledge is an evident and irrefutable fact. The field of English Language Teaching has not escaped this influence. At the same time, translation, as mentioned in the introduction, has not been able to cope with the overwhelming number of new terms which are coined every day. Thus, the need to specify for whom and for what purpose the teaching of English is required has contributed to the development of ESP:

> "ESP courses are those in which the aims and the content are determined, principally or wholly, not by criteria of general education...but by functional and practical English language requirements of the learner." (Strevens, 1977, p. 90)

It is useful to clarify that the term ESP can also refer to English for Special Purposes. In both cases, the words "special" and "specific" refer to the idea of needs specification or definition. The term "special", however, is not used in this project to describe a special language different from ordinary English:

> "What we have is the same language employed for similar and different uses employing similar and different usages." (Mackay, 1978, p. 5)

The students are, then, the most important element in ESP since it is the student, and not the teacher or language itself, who determines the starting point for the course and materials design. This new approach to language teaching not only saves time as well as material and human resources in the process, but also helps the students feel more stimulated by having a course relevant to their needs. According to Bates (Mackay, 1978, p. 78)there existed before a gap between the process of learning English and the eventual use of the language. This resulted in low motivation on the part of students. With ESP, the students use in an active way not only their knowledge of English but also the different kinds of knowledge they have in their own language. The main purpose of an ESP course is to use the information that the learners have both of their own language and in their specific field of study in order to show them how these ideas are expressed in English:

> "A communicative curriculum will focus on the learner from the very beginning by relating the initial contributions of the learner to the ultimate purposes of the curriculum. More precisely,

> the communicative curriculum seeks relationships between any specific target competence and relevant aspects of the learner's own initial competence." (Breen and Candlin, 1979, p.3)

At the same time, since we are not specialists in scientific or technical subjects, an ESP course is not meant to be used as a tool to teach the student the content of his field of study. Nor is it used to teach the formal structure of the English language. Rather, its main emphasis in on the interrelationship that exists between the subject and the language. (Meehan and Ross-Jones, 1978, p.1). In this manner, English as a Foreign language can be looked upon from a new perspective, i.e. as having both an auxiliary role for the modern student and as a tool to achieve academic and occupational goals. According to Selinker and Trimble:

> "...our students are learning a foreign language primarily in order to manipulate difficult intellectual material in it." (Mackay, 1978, preface viii)

Although there seems to be a confrontation between ESP and EFL, we should view both of them as part of a continuum. According to M. Macmillan, (Macmillan,1979, p. 6) this continuum embodies courses for homegeneous groups with very specific needs at one extreme, courses for mixed groups with a variety of specific purposes in the same field of study in the middle part of the continuum and at the other extreme, courses for mixed groups with very different and diverse needs. Each of these situations would require special course design.

Due to the fact that the term ESP is very general and refers not only to scientific and technical areas but also to humanistic ones, several subdivisions take these differences into account. The term English for Science and Technology (EST) is applied to courses both in scientific and technological fields of study. There is also a difference between courses which have academic objectives (English for Academic Purposes-EAP) or occupational objectives (English for Occupational Objectives-EOP). Strevens, (Strevens, 1977, p. 91)has added other diversifications in EAP and EOP. In the academic area, we have English courses given before the student begins his field of study (as is the case with our first-year students) and courses which are offered while the students are studying their specialty subjects (as in the case of our ESP courses). There is also a difference between an English course offered independently from the other subjects of the specialty and one in which English is taught through the subject matter.

At the USB, ESP courses fall within the area of EST and EAP. Our courses are also part of the pensum for fields of study such as Architecture, Biology, Computer Science, Electronic Engineering, Mathematics and Urban Planning.

Even though students entering the university are not fluent or very efficient in their use of English, a four-skill course is not needed to upgrade their knowledge. On the one hand, such courses are frequently rejected by students since they are reminders of the courses they had in high school (which have not been very successful in teaching them the language). On the other hand, a course of this nature does not help learners satisfy their real needs with regard to English in their university studies.

1.1 Scientific Language

There is still no consensus what scientific language is. Nevertheless, we can say that it requires special skills in each discipline. According to Strevens, the main difference between scientific and everyday language resides in the frequency and distribution of the various language elements. In this way, we have, for example, the frequent use of compound nouns, passive verbs, expressions of quantity, abbreviated relatives and so forth. (Strevens , 1977, p. 93)

An additional , very important characteristic is the use of a technical vocabulary, the density of which varies with respect to the different fields of study. Fields such as Computer Science or Electronic Engineering have a great number of very specific terms, and the student will need to learn them in order to deal efficiently with the texts in these fields. In contrast, we have fields such as Urban Planning, in which technical terms are less frequent. The use of symbols is also very important in some scientific fields. In Mathematics, for example, symbols are essential components of its language.

In the past, scientific language was criticized since it was considered poor and lacking in literary style. It was also said that scientists tended to express themselves in a complicated and redundant manner. Influenced by these views, the field of ELT was limited to the literary aspect of the language without taking into account its scientific use. According to Allen and Widdowson, English Language Teaching (ELT), within the structural approach, placed great emphasis on the elementary level and notably neglected intermediate or advanced-level students. In this approach language teaching dealt with the most simple grammatical structures. Behavioral theory was also a very important part of this approach. Routine class activities included repetition and memorization drills.

With the awareness that science and technology require transfer on a worldwide scale, new uses of English arose. Due to the fact that science students only dispose of a limited period of time for language learning, they need to learn only those aspects of English which can help them in their fields of study. ESP, therefore, arises as a universal medium for training the student of our times.

1.2 The Development of ESP

M. Macmillan (1979) divides ESP into three stages or generations. The first generation would include those materials produced in the 60's, which still bore a strong influence from the structural approach and behavioral Psychology. There was also a great emphasis on register analysis, i.e. the analysis of unique and distinguishable systactic structures and vocabulary within the language system. An example of this type of approach is Ewer and Latorre's textbook: A Course in Basic Scientific English, produced in Chile.

Applied and pure linguistics, discourse analysis and the analysis of the communicative needs of the learner have all influenced materials produced in the second ESP generation. In this stage, there is great emphasis on the students and the kind of skills they need in order to communicate efficiently in the scientific register. The "Focus" series of Allen and Widdowson are representative of this period.

Finally, Macmillan describes a third generation which is being developed at present. Its main characteristics are:

> "a) a process orientation, encouraging learners to develop their own learning strategies through creative, open-ended techniques such as role-playing and simulations.
> b) a variety of learner-centred methodological options to allow for individual variations in motivation.
> c) an emphasis on multi-media packages-even when the learner's apparent goal is uniquely concerned with one skill-say reading.
> d) a multi-theme approach avoiding a commitment to material drawn exclusively from the special subject area-"metallurgy for metallurgists".
> e) attempts to exploit what the learner himself brings to his learning task-his acquired experience of the world and of the topic.
> f) influences from creative approaches not normally associated with ESP-suggestopaedia, counselling learning, silent way, drama techniques.
> g) procedures for teacher self-monitoring-which becomes even more important as the teacher's role

> becomes more varied and less orthodox,
> h) less emphasis on the book-because of the trend toward more flexible, multi-media, learner-centred programs." (Macmillan, 1979, p. 6)

In summary, the trend in ESP now seems to be towards eclecticism and a greater balance btween the grammatical and the communicative aspects of language.

2. The Communicative Approach

In the last years, the interest aroused by ESP and EST has coincided with the interest shown by linguists in the communicative aspect of language.

In the late 1960's, linguists like Ross, McCauley and Lakoff "began arguing that one cannot in fact describe grammar in isolation from meaning"(Coulthard, 1977, p. 3). Lakoff concentrated his efforts on clarifying the sociolinguistic aspects in the process of language acquisition:

> "in order to predict correctly the application of many rules one must be able to refer to assumptions about the social context of an utterance, as well as to other implicit assumptions made by the participants in a discourse." (Coulthard, 1977,p.3)

This shift of emphasis from an abstract and formal viewpoint of language to a conception of language as a system of communication was mainly due to the development of two disciplines influenced by Communication Science. Psycholinguistics and Sociolinguistics are concerned with two essential components in the process of language acquisition: the individual and his

/her social and cultural environment. Thus Psycholinguistics is concerned with the individual and what happens inside him/her and how he/she expresses this in the form of a message. It analyses how words and sentences originate inside the speaker through the process of language acquisition as well as the psychological mechanisms which make possible the formation of concepts and ideas and their expression through language. Sociolinguistics, on the other hand, postulates that the rules of language are operating at a subconscious level and although language is used, these rules are still unknown. It focuses on the individual as a social entity living within a community and on the social and cultural factors operating in this community. (Sindermann, 1980)

These two disciplines have greatly influenced the present approach to the teaching of English as a foreign language. This approach is intended to develop the communicative competence of the individual. If language is viewed as a system of communication, then the emphasis when teaching it is on the use and purposes of language and not on its formal description.

The notion of "communicative competence" adopted here is that proposed by D.H. Hymes. In brief, this competence refers to the capacity of the individual to express himself in a language taking into consideration the sociocultural elements that determine the form and substance of the message:

> " ...the competency of users of language entails abilities and judgements relative to, and interdependent with, sociocultural features... ."(Hymes, 1972, p. 277)

At the same time in England, Halliday (1973) developed his notion of "meaning potential" which refers to the fact that at the moment of uttering a message we can choose from several language options according to a given communicative situation. Thus there exists a need to integrate language to the social context. As Halliday observes, language exists because we want to use it for something. He distinguishes between the "meaning potential" of a child and that of an adult. While in the former there is a one-to-one correspondence between the words and expressions he uses and the functions he wishes to fulfill through language, in the latter this limited correspondence does not exist, since an utterance could correspond to different functions.

Widdowson also proposes a model concerning language as communication. He distinguishes between our knowledge of the abstract system of language (usage) and the appropriate and meaningful use of such linguistic knowledge to ensure an effective communication (use)(Widdowson, 1978, p.3). Until recently, the teaching of a language focused on the study of its abstract system on the assumption that the learning of the grammatical structures of a language guaranteed the knowledge of its use. Widdowson points out that the teaching of "use , however, does not seem to guarantee the learning of usage since the latter is represented as a necessary part of the former" (Widdowson, 1978,

(p. 19). Thus, if knowledge of a language entails both knowing its use and usage, "it seems clear that the teacher of language should be concerned with the teaching of both kinds of knowledge" (Widdowson, 1978, p. 19).

Within the communicative approach to language teaching, the functional aspect of the language should also be considered. Through language functions such as description, classification, definition, inference, instructions, and so forth, the speaker or writer communicates his/her ideas to the person or people addressed. In addition to their functional value, sentences or utterances also convey a conceptual or notional meaning by expressing concepts of time, quantity and place, ideas, information and content in general. Both the functional and notional aspects of language competence have been developed by D. A. Wilkins in his book Notional Syllabuses (London: Oxford Unviersity Press, 1976). According to Wilkins, when teaching a language we should make sure that the learner knows how to express the different types of meanings in order to adapt and combine the different components of his linguistic knowledge according to the requirements of a given act of communication.

3. Reading as a Means of Access to Specialized Literature

As was mentioned above, the design and teaching of ESP courses is based on the linguistic and communicative needs of the learners. At the USB, we have identified (through questionnaires given to coordinators, professors and students of the different specialty areas) that the fundamental need of our students is to have access to the reading material of the specialty areas such as textbooks, manuals, journals and so forth. In our ESP courses, the main objective is to teach the students to read specialized texts efficiently. By "efficiently" we mean reading without difficulty and with minimal use of the dictionary. In addition to the skill of reading, the results of the surveys showed the necessity of considering oral comprehension as a secondary skill, which we develop as a reinforcement of reading. According to Goodman, "listening comprehension and reading are processes in which the language user may sample, select and predict from the available signal" (Goodman, 1969, p. 1). Oral comprehension is a valid reading reinforcement since "rhythm , stress and intonation can be powerful semantic markers for the learner. An overlay of Spanish intonational and rhythmic patterns imposed by the Spanish speaking learner on an English text can make an almost insuperable barrier for him" (Meehan, Ross-Jones, Villoria, 1979, p. 5).

Since the reading skill is our main teaching objective, it is pertinent to make a brief analysis of how reading is presently interpreted and the implications of the communicative approach for the teaching of this skill.

As it has been pointed out by Strevens, "reading consists of making out the meaning of written language" (Strevens, 1977, p. 111). Thus, an analysis of reading must entail an analysis of writing. According to Strevens, reading shares the six functions of written language. The first one, called iconic, refers to the visual aspect of writing, such as illuminated initials, capitals and italics. All these elements are utilized to express a certain meaning. Secondly, the linguistic function, which includes the grammatical, lexical, semantic, stylistic and even phonological aspects of writing. "This is the function ... which embodies the description of the language in all its forms and all its diversity" (Strevens, 1977, p. 111). Thirdly, the logical function, which refers to the logical relations between sentences and paragraphs which convey a sense of coherence to the text. Fourthly, the informational function which embodies the content aspect of language. Fifthly, the rhetorical function, through which the communicative purposes of the writer towards the reader are conveyed. Finally, the implicational aspect which refers to the capacity of interpretation and inference of the reader on the basis of the knowledge that he possesses of the surrounding world. The process of reading also includes two simultaneous stages:

a. Deciphering, which constitutes the pattern recognition aspect of reading. "The reader learns to distinguish writing from other kinds of pattern, learns the letter shapes, becomes accustomed to the direction of the writing, finds beginnings and ends, identifies words, sentences, paragraphs, learns to adjust the rate of eye-scan to the rate of comprehension and also learns how to refer back , or forward, to resolve ambiguity or doubt" (Strevens, 1977, p. 112).

b. Decoding, which is "part of the total process of comprehension." It entails "linking the deciphered information to the reader's knowledge of the language (grammar, vocabulary, semantics, pronunciation) and of the culture." In other words, the reader discovers meaning, interprets it and even puts it into action.; "and finally the language he has read is assimilated into his total experience, thereby affecting in some degree all his subsequent reading" (Strevens, 1977, p. 112). Thus "skill in reading depends on the efficient interaction between linguistic knowledge and knowledge of the world" (Clarke and Silberstein, 1975, p. 137).

For Goodman, reading is an active process. The reader uses strategies which enable him to predict as much as possible with a minimum of clues. As the reader processes information and makes predictions, he confirms and refutes these predictions (Goodman, 1969, pp. 1-2).

Widdowson, basing himself on Goodman, also considers reading as an active process, since what a reader reads is discourse, i.e. the way propositions are linked and used to produce illocutionary acts, and not the traditional conception of a text which embodies the grammatical properties of language. Discourse is an interaction between the writer and the reader through the written text. "Reading as the understanding of discourse does not simply involve the recognition of what words and sentences mean but also the recognition of the value they take on in association with each other as elements of discourse"(Widdowson, 1978, p. 63).

Hence, according to Widdowson, the communicative approach when applied to reading should take into consideration the development of discourse in a text, whose main elements are cohesion, coherence and interaction. Cohesion refers to the way sentences are linked through grammatical structures and certain linguistic elements such as anaphora and cataphora. The term coherence corresponds to the logical sequence that should exist between sentences and paragraphs (Widdowson, 1978, p. 63). Discourse should be interactive. Between the reader and the writer there should exist a negotiation of meanings and the degree of interaction will vary according to the level of comprehension of the reader when dealing with a text.

In the reading process, in addition to the communicative value of sentences and the logical sequence of ideas, it is necessary to take into account the students' knowledge of the non-verbal aspects of discourse, such as maps, graphs, formulae, as well as their ability to interpret these elements, and their knowledge of the specialty in their own language.

The development of reading skills can also be approached from the rhetorical point of view. This approach has been developed by Larry Selinker and Louis Trimble to help "foreign students who showed the ability to understand every word in a sentence and every sentence in a paragraph, yet were unable to grasp the function of the paragraph rapidly enough for the reading process to be efficient" (Trimble, 1979, p. 2). They define scientific and technical rhetoric as the process utilized by the writer of scientific and technical texts to organize the information for specific purposes and types of readers. Thus the rhetorical approach entails the recognition and understanding of the rhetorical functions of paragraphs (i.e. what the paragraph does, whether it defines, classifies or describes) and the rhetorical techniques writers use to relate the ideas within and between paragraphs. These functions and techniques can be found implicitly or explicitly in a text.

Trimble and Selinker consider the paragraph as the basic unit of analysis and teaching in scientific and technical English. They call it the "conceptual" paragraph and define it as " a group of organizationally(rhetorically) related concepts which develop a given generalization in such a way as to form a coherent and complete unit of discourse" (Trimble, 1979, p. 3). The "physical" paragraph is discarded because it only refers to the physical position of sentences on a page of text.

4. The Application of these Theoretical Issues at the USB

The concepts discussed in the previous sections of this paper have been developed in connection with the teaching of four skills language courses. Only those ideas and concepts which enrich our specific case have been used to structure our eclectic approach for designing and developing our ESP language teaching experiences.

We do not ignore the grammatical aspect of language in the design and teaching of our courses. Grammar is, however, used as a reinforcement for the development of reading and oral comprehension skills whenever the grammatical structures of language are semantically relevant and not as ends in themselves. We also borrow from the communicative, functional and notional approaches to language teaching. In keeping with the communicative aspect, we conceive of language as communication and a means of expressing ideas and concepts which are influenced by psycho and sociolinguistic factors. Following the notional framework, we teach students to recognize patterns of argumentation, persuasion, exposition and information which are typical of scientific texts, taking into account communicative functional categories such as definition, deduction, classification, conjecture, instructions and so forth (Wilkins, 1976). We also place emphasis on the rhetorical techniques which are implicitly or explicitly used by the writer to organize the information in a text. We take into consideration the notions of cohesion and coherence without being too concerned with discourse analysis.

The relative degrees of importance accorded these concepts vary in relation to the needs specified for each ESP course as well as the nature of the specialty area for which it is designed.

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CHAPTER II

NEEDS ANALYSIS - FIRST STEP IN ESP COURSE DESIGN

Ana María Rajkay de Dolányi

1. Introduction

When this project was conceived in response to the need of systematizing the design of English courses at the professional level in the various specialties available at the Universidad Simón Bolívar (USB), a series of questions had to be answered - most of them apparently simple ones, but precisely because of that, quite fundamental: Why should English be taught at the professional level? How much English should be taught? What kind of English is needed? How should English be taught? Who are the students who take English courses? Some of these questions were answered as soon as the basic approach to English teaching at the USB was specified, but the ones that remained unanswered required investigation as a first step.

According to Mackay (1978, pp.21-37)[1], the teachers who actually plan courses are the ones who should obtain the information needed concerning the specific purposes the students have when they take a course, so these purposes can be translated into educational and linguistic terms. This is the case of the eight teachers who met for this project, since they fulfill the multiple role of teachers/planners/developers: all the aspects involved in teaching English courses.

Since the efficiency of the linguistic instrument had to be obtained by fulfilling objectives which are different from the ones regularly stated for language teaching, as Mackay (1978)[2] reminds us, an extensive study of the real needs had to be made. He considers that an analysis of the needs is a necessary first step before planning a language course; other authors, like English and Kaufman (1975)[3] and Ortega (1981)[4] go further and say that an analysis of needs is the first step in any kind of planning. But of course, there are also authors who feel that data collection should be used for determining future needs rather than "real needs". Chambers (1980)[5], for example, refers to this alternative process as "target situation analysis". Nevertheless, in this paper, the terms "needs" and "requirements" shall be used interchangeably. The professors involved in this project felt that a needs analysis was necessarily the first step to be taken toward systematization. For a more detailed explanation of the theoretical frame of reference, please turn to the corresponding part of the project.

2. The Methodology Chosen for Needs Analysis

According to general planning rules, a prerequisite of success is the specification of limitations, characteristics and trends of the field under study so as to handle efficiently the requirements of all parties involved in the activity to be planned (Salvat (1973)[6], Robinson/Richterich and Chancerel (1980)[7]). In order to gather the above-mentioned specifications it was deemed necessary to utilize reliable, objective, empirical and measurable instruments. The chosen instruments had to guarantee the reliability of the information obtained through them in order to permit the verification of data for further planning and projections (Thiel, Boot and Kloek (1965) (1965)[8]). Various experiments and projects carried out in similar fields were studied in order to choose the proper methodology for our investigation (Schmidt (unpublished as yet)[9], Cohen et al. (1974)[10], Mackay and Mountford (1978)[11], Mackay (1978)[12], Robinson (1980)[13], Widdowson (1978)[14], Morgan (1974)[15], Tuckman (1975)[16] and Munby (1979)[17]). In this regard, areas such as operations analysis, evaluation of learning processes and investigation in psychology, were also studied.

As a result of this search for the proper instruments and methodology of investigation, it became clear that we had to describe the existing situation and obtain information from the coordinators* of the specialties, the professors of the various subjects and the students. The needs of the teachers of English courses did not have to be taken into account since their needs would be identical to those of the group the courses were designed for. It follows also that those specialties which did not request English courses were not taken into consideration, although such a possibility is not to be totally dismissed, since a comparative study might prove useful in the future.

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*NOTE: This term refers to the heads of the 'coordinations', which are equivalent to the 'professional schools'.

The following specialties were studied: Architecture, Biology, Computer Science, Electronic Engineering, Mathematics and Urban Planning. The population analyzed was divided into three groups: the coordinators, the professors and the students. It was decided that these three groups had to be dealt with in different ways, due to their dissimilarities, while keeping in mind the common elements which could be compared. In an interview, coordinators were asked a preestablished battery of questions. This technique was chosen because the coordinators set the requirements of the specialties, and therefore it was thought useful to give them the opportunity to explain their points of view a little more extensively. With the help of a questionnaire, the professors were asked the same questions as well as a few additional ones. The student questionnaire was even more detailed. Besides these questionnaires, a student profile was prepared by the teachers of each ESP course. A text analysis of readings used by the students of each specialty was carried out.

Now, why was the questionnaire/interview method chosen? Because it was found to be the most useful one for our needs. The first possibility could have been simple observation - supported by some reliable instrument, of course - but we agreed with Tuckman (1975)[18], when he calls our attention to the fact that: "Observations have a highly subjective quality. They often represent what is in the eye of the beholder rather than what actually exists." Another way of carrying out this type of investigation could have been by following the development of a small random selection of students and basing decisions on the results of such activity. This was used in investigations described by Cohen et al. (1974)[19] and Schmidt (unpublished as yet)[20], mentioned above. This method is quite slow, and therefore not appropriate for our needs, since course planning and evaluation had to take place simultaneously with the project. This methodology is not to be discarded totally, however, because it could prove useful for long-term evaluation of the results of this project. Lastly, the method of questionnaires is left as an alternative. They permit the acquisition of precise data from a large number of subjects, on a broader scale of items, in a much shorter time. Tuckman (1975)[21], nevertheless, also calls our attention (although between parentheses) to the following: "...it must be remembered that even tests" - and this is true for questionnaires too - "can be misused to help make a point." Henri Theil et al. (1965)[22] also state: "Of course, it is still quite a problem to get honest answers to relevant questions."

They make this statement referring to the interview technique, although it applies perfectly to the questionnaire technique as well.

What is important is that the chosen instruments had to be such that they would obtain the greatest amount of data possible for the project - be it to prove the possibility of systematizing course planning or the opposite. This investigation was undertaken from its inception with a spirit open enough to permit the acceptance of any results obtained. The participants of the project were fully aware of the fact that the results of the investigation might show that it was a mistake to use the chosen approach. This line of thought, it was believed, would guarantee the seriousness, scientific validity and reliability of the results obtained.

3. Situational Characteristics

All the students who register in ESP courses must previously have taken (unless they were exempted) a one year basic scientific English course. In the second year of their undergraduate studies, they enter their specialty; at this point they may take an ESP course or a General Studies course in English (the latter deal with miscellaneous topics such as: the image of women in North American Literature, Science-Fiction, and so forth).

ESP courses do not have the same length; some are one trimester long (e.g. Computer Science), others are three trimesters long (e.g. Mathematics). Furthermore, ESP for Computer Science is an elective, whereas ESP for Mathematics is obligatory (see Annex 1). This variety of conditions is further complicated by the lack of regulations concerning precisely when the student should take the ESP course. This means that ESP teachers have to deal at the same time with students who have just entered their specialty and students who are finishing their thesis.

4. The Profile of the Typical Student of ESP Courses

In order to prepare the profile of the typical student of ESP courses, the professors involved in this project used Munby's (1979)[23] model, according to which the identity of the participant has to be stated (age, sex, nationality, place of residence, mother tongue, target language, existing level of target language, other languages know by participant, level in those languages, academic average of the student, institutional elements, courses of English taken by the participant); a description of the specifications of the target language (classification, purposes, study area, code); the physical environment in which the target language is to be taught/used (country, city, institution, environment, supporting system, projection of use of target language in other settings); a detailed list of the media to be used; and finally, the description of the target level to be achieved through the general objectives of the course (length of discourse, complexity of discourse, scope of forms/micro-functions/micro-skills, demanded details, speed of communication, flexibility in new situations, level of error tolerance, use of reference materials). The last aspect of the profile was a statement of the general objectives to be achieved with the course. Six student profiles were presented.

5. Questions used for coordinator interviews and professor and student questionnaires

The questions used for both the interviews and the questionnaires were selected by the professors involved in this project. In order to do this, they analyzed a number of investigations (Mackay and Mountford (1978)[24]), taking into account the objectives of the project and of the courses as well, and the recommendations mentioned above (Mackay, 1978)[25]. Widdowson, as quoted by Maxine F. Schmidt (unpublished as yet)[26] notes the importance of being aware that needs may be understood from the objectives point of view or from the process point of view. In this project the objectives point of view was taken.

The coordinators were asked questions regarding the amount of readings in English assigned to the students, the skills needed (they were asked to categorize the four skills *),

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* See NOTE on next page.

the expectations regarding post-graduate studies in English speaking countries, the reasons students probably have for choosing English, the reasons coordinators have for requesting English courses for the specialties they coordinate (see Annex 2). Similar questionnaires handed out among the professors of each specialty, tried to cover a random sample of professors of each subject in each year of the specialty. They were asked the proportion of readings in English, the necessity of using those readings, the skills needed (they were also asked to categorize the four skills*), the usefulness of a knowledge of English for the students, the frequency with which they (the professors) had to use English texts, while preparing their classes, the level of their (professors') mastery of English, and the necessity of English in order to become a high level professional (see Annex 3). The student questionnaires were administered with the help of those professors who filled out the professors' questionnaire. They were asked the place in which they acquired their original level of English before entering the USB, the level of their mastery at that time, the level of their mastery of English after the basic scientific English course, the frequency, fluidity, and kind of readings they encountered in English, their opinion about the need to master the English language, their appreciation of the amount of English needed at the under-graduate level, their appreciation of the need for English in order to pass their subject, their appreciation of the need to master English in order to graduate, their appreciation of the need to master English in order to become high-level professionals, the purposes of reading in English, the kind of readings used throughout their under-graduate years, the purposes of readings at graduate level. Three additional questions had to be answered only by those who had already finished their ESP course. They were asked to evaluate their mastery of the reading skill, to evaluate the topics dealt with in the ESP courses and to categorize the skills the way they would have liked to learn them (see NOTE on previous page, and Annex 4). The students who answered the questionnaire belonged to the specialties in which ESP courses are offered, as was mentioned above. Six coordinators were interviewed, and a questionnaire was answered by 28 professors and 356 students.

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*NOTE: Some authors, like Vaughan (1978)[27] do not agree with the categorization of language skills; in fact, they caution against it. In the case of this project, it was necessary to focus our attention on the most needed skill due to time limitations.

The student questionnaire was coded in order to be analyzed with the help of a computer. The computer program used for this purpose gave a sub-total per question, a sub-total per specialty, and a general total. There were two kinds of totals, since some were simple additions of the number of answers and the others totalled the points in those questions which asked for categorization. The aim of this proceeding was to establish tendencies and preferences, not necessarily numerical values.

The questionnaires were tested on a small group of eight professors who analyzed the questions and gave suggestions regarding phrasing and relevance.

6. Bibliographical Analysis

This analysis was carried out by going directly to the texts specified by the programmes for each course in each specialty. Kirkwood and Moore (1978)[28] comment on the convenience of utilizing 'authentic' materials. A variety of samples were studied, in order to establish the various forms of language most commonly used in each specialty (reports, articles, manuals, textbooks); the nature and kinds of discourse (explanatory, instructive, descriptive); the objectives of discourse (to teach, to evaluate, to impose an opinion); the most frequent linguistic features appearing in the texts; and ultimately, to determine the skills needed by the students to manipulate efficiently the linguistic features found in the chosen texts.

7. Results and conclusions

As the student profiles were compared, the following results were obtained: the typical student of ESP courses is approximately 19 years old; there are as many male as female students; the majority are of Venezuelan nationality; they generally live in Caracas, and Spanish is their mother tongue. The target language, in our case, is English. Background knowledge consists of five years of basic English at the secondary level and one year of basic scientific English taken in their first year at the university. This knowledge does not generally reach a very high level; it could be classified as between lower intermediate and higher intermediate. Some students know other languages, but the proficiency levels in these languages is unknown. The academic level of the student population is heterogeneous, since some students are in the first year of their specialty, others are in the last year of their undergraduate studies. The students that were analized come from the following specialties: Architecture, Biology, Computer Science, Electronic Engineering, Mathematics and Urban Planning. For some specialties an ESP course is elective, while for others it is obligatory. The duration is also variable, since for some specialties it is a one-trimester course, whereas for others it lasts three trimesters. These fall into the category of EAP rather than that of EOP. The physical environment is represented by the campus of the USB, a public experimental university, which is located on the outskirts of Caracas, the capital of Venezuela. This university is technologically oriented, and places a strong emphasis on investigation and research. Admission is based on a stringent admissions exam, which guarantees a high academic level. The academic year is divided into trimesters. The typical student will need English in the classroom, for individual study in the library; the student will also need English to understand the oral discourse of films, conferences and dialogues. It is probable that the typical student of ESP will need this language for professional purposes later on, after graduating in an environment similar to that of this university.

ESP teachers have varied media resources at their disposal for their teaching activities, since the university has an audio-visual center and materials copying facilities. Hence the teacher is afforded great flexibility in designing courses. The channels most frequently used are face-to-face encounters and video-cassettes.

The target level is most commonly reached through the analysis of short essays of 3 to 4 pages in length, with a medium to high degree of complexity (since authentic material is used), with forms and functions of all levels. The teacher communicates as far as possible at a regular conversational speed. A certain degree of flexibility is expected from the students regarding new texts, although they will normally be related to the topics dealt with in class. A certain measure of tolerance for errors is acceptable, especially in the use of the skills considered secondary in our case.

The interviews with the coordinators indicated that most of them felt that the percentage of readings in English was between 50 and 75%. They all agreed that in order to graduate, the student had to deal with readings in scientific English; therefore they classified reading as the most important skill. The coordinators thought that most students take post-graduate degrees in English speaking countries, especially the USA and England. They thought students choose English courses mainly because they are compulsory. They hope that English courses will develop reading techniques, some capacity for listening comprehension and an ability to cope with post-graduate courses in English speaking countries.

Although some teachers stated that they only assigned texts in Spanish, since they were unaware that students were being prepared to read specialized texts in English, the vast majority thought that the amount of readings in English grew as the student approached graduation. A majority also felt that it would be beneficial to the student to be able to handle English texts throughout the years of their studies. All the professors assigned a higher number of points to the reading skills. All professors admitted using the English language for the preparation of their classes, while consulting relevant bibliography. 85% of the professors said they had to read English daily, and most of them thought they did so well. They said they usually read textbooks, essays and technical articles. There was a general agreement about the need for English in professional life.

The student questionnaires showed results similar to those of the professors' questionnaire. They also proved the profile to be quite accurate. The majority of our students said that they had acquired their English in high school. They felt that their level was intermediate in the four language skills (they could choose between excellent/very good/good/intermediate/poor). They considered that their level had improved somewhat after the basic scientific English course. 95% of the students felt that they could read in English but they only read occasionally. Despite this, they felt that they read with difficulty. They indicated that most of the readings had to deal with textbooks necessary for their specialty subjects. They named scientific journals in the second place. They thought that more than half of their assigned readings could be found only in English. Nevertheless, they believed that it was not necessary to master the English language in order to graduate. There was a recognizable tendency of students approaching the end of their studies to be more aware of the need for English. The students gave the greatest number of points to reading, while oral comprehension was next. Writing and oral expression were considered to be of lesser importance. Students did not seem sure about the actual necessity of English for their future, although they felt that a good professional should master English. They said that they have to read in order to gather relevant information. They stated that the texts most often read are textbooks and scientific magazines. They felt that they would need English in the future for post-graduate courses, conferences and seminars. Those who had already taken the ESP course thought that they had attained an adequate level. They showed an inclination toward topics related to their specialties, although a certain interest for general culture was also discernible. As a general observation it could be concluded that English is viewed by coordinators, professors and students as an instrumental language. This of course, is in line with the theoretical aspects of ESP courses as understood by the teachers participating in this project. However, it is to be observed, that data gathered as done here, is not static.

It is the intention of this group of investigators to evaluate the instruments used, make adjustments, and apply them again year after year for an up-dating of available information. It is hoped, as Richterich and Chancerel (1980)[29] state, after a number of years a true systematization might be achieved in the field of needs analysis, thereby guaranteeing the reliability of all other steps toward systematized course design.

8. Annex 1

	No. of Trimesters	Classification
Architecture	3	Obligatory
Biology	3	Elective
Computer Science	1	Elective
Electronic Engineering	1	Elective
Mathematics	3	Obligatory
Urban Planning	3	Obligatory

9. Annex 2

Battery of questions given to coordinators: (translated from Spanish)

1. What percentage of prescribed readings are available only in English?
2. Do you think that it is necessary to know English to graduate in this specialty?

   If your answer was 'yes', please categorize the four skills according to importance (reading, writing, oral expression, oral comprehension).
3. Where do you think it is most likely that students graduating from this school would take post-graduate courses?
4. Which is the main reason that motivates students to choose an ESP course? Why?
5. What do you expect your students to learn when they take an ESP course? Please expand.

Please feel free to add any comments you have.

10. Annex 3

Professors Questionnaire (Translated from Spanish)

Name:

Department:

Subject/Course:

1. What percentage of prescribed readings are available only in English? Mark with an 'X'.
   a. None
   b. 0 - 24%
   c. 25 - 49%
   d. 50 - 74%
   e. 75% or more
2. Do you consider that your students need English for this course?
   a. yes
   b. no
3. Please categorize the following language skills, according to the importance of each for this course, rating with '1' the least important one and with '4' the most important one.
   a. reading _____
   b. writing _____
   c. oral expression _____
   d. oral comprehension _____
4. Do you consider it necessary to know English to graduate in this specialty?
   a. yes
   b. no

5. Please categorize the following language skills, according to the importance of each for this specialty, rating with '1' the least important one and with '4' the most important one.

a. reading _____

b. writing _____

c. oral expression _____

d. oral comprehension _____

6. Do you consider it necessary to read in English to prepare your classes in this subject?

a. yes

b. no

If your answer was 'yes', how often do you read English?

a. daily

b. weekly

c. monthly

d. occasionally

How well do you read English?

a. very well

b. well

c. intermediately

d. poorly

What kind of readings do you use to prepare your classes? Please specify:

7. What kind of readings in English do you recommend to your students in this course? Please specify:

Which of these readings do you consider indispensable to pass this course? Specify please:

8. How useful do you think English is for a well qualified professional graduating in this specialty?

a. necessary

b. convenient

c. unnecessary

11. Annex 4

Student Questionnaire (Translated from Spanish)

Specialty:

Level (year) of specialty:

Subject:

Professor:

FIRST PART: Please mark with an 'X' the answer of your choice. Your answer should reflect as nearly as possible your opinion or situation.

1. You acquired your knowledge of English previous to your admission to the university in:

   a. high school
   b. foreign school
   c. language academy
   d. at home
   e. an English speaking country
   f. nowhere
   g. other; specify______________

2. How would you rate your knowledge of English previous to admittance to the university? Use the following grading: 1 - poor ; 2 - intermediate; 3 - good; 4 - very good; 5 - excellent

   a. reading _____
   b. writing _____
   c. oral expression _____
   d. oral comprehension _____

3. How would you rate your reading in English, after taking the basic scientific English course? Use the same grading system explained above.

____

4. Do you read in English? a. yes b. no

If you answered 'yes':

a. How often do you read in English?

i. daily
ii. weekly
iii. monthly
iv. occasionally

b. How do you read?

i. fluently
ii. with a little difficulty
iii. with difficulty
iv. with much difficulty

c. What do you read? If you have more than one choice rate them according to the scale explained above.

i. basic textbooks ____
ii. professional magazines ____
iii. theses ____
iv. general cultural texts ____
v. literature ____
vi. other, specify ________ ____

If your answer was 'no'

Do you think that knowing English would help you with your studies? a. yes b. no

5. What percentage of the required readings are available only in English?

   a. 0%
   b. 0 - 24%
   c. 25 - 49%
   d. 50 - 74%
   e. 75% or more

6. Do you think it is necessary to know English to pass this course? a. yes b. no

7. What kind of activity do you think you will need during the remaining years at this university? (In English)

   a. reading
   b. understanding spoken language
   c. writing
   d. I don't know

8. Do you consider it necessary to know English to graduate?

   a. yes b. no

9. How would you describe the usefulness of English in order to graduate as a high-level professional of your specialty?

   a. necessary
   b. convenient
   c. unnecessary

SECOND PART: Please rate the answers according to your priorities and needs, using the scale explained above ('1' for the least important and '5' for the most important item)

10. Why do you read in English for this course?

    a. to obtain basic information
    b. to obtain additional essential information
    c. to obtain additional information
    d. to write essays or reports
    e. for fun
    f. other; specify ______________________________

11. What do you have to read in your specialty?

    a. textbooks
    b. magazines or newsletters
    c. manuals
    d. general cultural texts
    e. nothing
    f. other; specify __________

12. You will need English after graduating to

    a. keep up-to-date with specialty literature
    b. take post-graduate courses in English speaking country
    c. go to conferencies and seminars in foreign countries
    d. **travel** outside Venezuela
    e. nothing
    f. other; specify ____________________________

THIRD PART : This part of the questionnaire should be answered only by students who have already taken the ESP course.

13. How would you rate your reading skills after taking the ESP course? Use the scale mentioned above. ______

14. Which topics did you prefer in your ESP course?
    - a. those which are related with the other areas studied
    - b. those of a general scientific character
    - c. those of general culture
    - d. others; specify ________________________________

15. Which additional language skill would you have liked to develop further in your ESP course (beside reading)?
    - a. writing
    - b. oral expression
    - c. oral comprehension
    - d. other; specify ____________

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CHAPTER III

THE OBJECTIVE EXPERIENCE IN " AN EXPERIMENT IN SYSTEMATIZED COURSE DESIGN FOR ESP AT THE UNIVERSIDAD SIMON BOLIVAR"

Sharon Owen de Ross-Jones

1. Introduction : Objectives - Their Need and Value.

An objective can be variously described as a desired outcome, a goal, an aim, a terminal behavior or an intention. The stating of objectives is an invaluable step in curriculum design because before we decide to plan or develop a course, we must decide what our aims and desired outcomes are.

There are many ways of expressing objectives - from stating them in a general way to specifying absolutely everything that teachers and students should do. We share the view that objectives should be guidelines for teachers and students and that, in order to avoid our courses concentrating on the content of instruction instead of on what the student should learn to do with the content, it is important to state objectives in terms of observable behavior. Therefore, taking into account our particular circumstances, our objectives state as clearly as possible the behavior(s) required for different types of content. This will be discussed more fully in part IV of this paper.

The stating of objectives falls into three areas which help to define them as well as to teach and evaluate them. These are the cognitive, affective, and psychomotor areas of learning (Gage and Berliner, 1979, p. 55). Although one cannot isolate the three domains from each other, it is useful to note which areas are to be dealt with when determining objectives. For our particular course needs we will be dealing mainly with cognitive objectives (i.e. those involving knowledge, comprehension, application, analysis, synthesis and evaluation).

Furthermore, objectives help both teachers and students perform more efficiently. The teacher is able to focus each class on what the students need, and the students, in turn, can study more effectively because they know what is expected of them and can direct their attention more clearly.

Well stated objectives are very valuable :

a. they help the teacher to determine precisely the correspondence between the objectives of the course and the communication skills required in professional life.
b. they help the teacher to select appropriate materials and methods for teaching the students.
c. they help the teacher to evaluate the effectiveness of his or her instruction.
d. they help the teacher to develop examinations which are relevant, fair and useful.
e. they help the student to evaluate his/her performance and allocate his/her time more appro-

priately.

f. finally, and just as important as any of the others, the process of trying to formulate performance objectives stimulates thought about the entire educational enterprise and often results in unexpected and valuable insights.

(Young, 1980)

2. Steps to Take Before Stating Objectives...

Before setting objectives it is important to establish first the dominant role of language learning in a particular course. Two features should be taken into account: 1) the context in which the students will be learning and in which they will eventually be using the language, and, 2) the specific purposes in operational terms for which the language is expected to be required. (Vaughan, 1978). These factors and others, were taken into account in the Needs Analysis section of this project which includes Munby's Communicative Needs Processor. For a complete account of this section please refer to the Needs Analysis section of the project. (Dolanyi, 1981).

The students were studied from a sociological point of view considering their needs as well as their personal characteristics; the bibliography that the students would be dealing with during the course of their studies at the U.S.B. was analyzed in order to predict the language uses, lexical items and syntactic patterns they would have to deal with; the students themselves were asked by means of a questionnaire what they felt their specific needs for English were; a theoretical framework was set up. The next step was to take this framework into consideration in order to determine what language skills were required and in what sequence. This was followed by research into the appropriate formulation of objectives.

For purposes of simplification, the second part corresponding to objectives formulation will be dealt with before skills selection.

3. Formulating Course Objectives.

The defining of objectives (i.e. determining desired learner capabilities and abilities) is not an easy endeavor. It should be performed in a step by step fashion and with extreme care. Much has been written on how to define objectives. Bloom (1975), Gagné and Briggs (1979) are among those who postulate that in order for objectives to be useful in the planning of the learning process, they must be defined with precise terms. One reason for this is that one word may have different meanings to different people. The choice of word, especially of verb, should therefore be one that transmits information as to the behavior required of the learner (i.e. it should be a 'technical' word.) The process of stating objectives begins with the identification of the purpose of the course. This, in turn, should reflect what is expected of the learner at the end of the course. The actual stating of the specific objectives involves what is expected of the learner during the course and should be defined "operationally," that is, the objectives should state what the learner has to do in order to confirm the completion and achievement of the objective. These specific objectives consequently define the planned results of the learning process and serve as the starting point for evaluation. (Gagné and Briggs, 1979, pp.91-95).

Norman E. Gronlund's book, Stating Objectives for Classroom Instruction, was very valuable to us as a reference in formulating our objectives. He concurs that specifying clearly the outcomes of learning will problaby make classroom instruction more effective. It is also vital that the statements be "general enough to provide guidelines for teaching without overly limiting the instructional process, yet specific enough to clearly define the behavior that the students are to exhibit when they have achieved the objectives. This approach provides for the inclusion of learning outcomes of all types and at all levels--ranging from the simplest to the most complex." (Cronlund, 1978).

With this view, we tried to state our objectives in relation to the learning outcome instead of basing them primarily on the teaching activity involved. In fact, Gronlund's recommendations for stating "general instructional objectives in behavioral terms," formed part of the process of stating specific objectives for most of our courses. Specifically, these recommendations were:

I Stating General Instructional Objectives:

a. Begin each general instructional objective with a verb (knows, understands, appreciates etc. Omit such unnecessary refinements as "the student can..." or "the student has the ability to..."

b. State each objective in terms of student performance rather than teacher performance.

c. State each objective as a learning product rather than in terms of the learning process.

d. State each objective so that it indicates the terminal behavior rather than the subject matter to be covered during instruction.

e. State each objective so that is includes only one general learning outcome rather than a combination of several outcomes.

f. State each objective at a level of generality that clearly indicates the expected learning outcome and that is readily definable by specific types of student behavior. Stating from eight to twelve general instructional objectives will usually suffice.

(Gronlund, 1978, p. 11)

II Procedure for Defining Instructional Objectives in Behavioral Terms:

a. State the general instructional objectives as expected learning outcomes.

b. Place under each general instructional objective a list of specific learning outcomes that describe the terminal behavior students are to demonstrate when they have achieved the objective.

   1. Begin each specific learning outcome with a verb that specifies definite, observable behavior.
   2. List a sufficient number of specific learning outcomes under each objective to describe adequately the behavior of students who have achieved the objective.
   3. Keep the specific learning outcomes free of course content so that the list can be used with different units of study.
   4. Be certain that each specific learning outcome is relevant to the objective it describes.

c. When defining the general instructional objectives in terms of specific learning outcomes, revise and refine the original list of objectives as needed.

d. Be careful not to omit complex objectives, (e.g. critical thinking, appreciation) simply because they are difficult to define in terms of specific learning outcomes.

e. Consult reference materials for help in identifying the specific types of behavior that are most appropriate for defining the complex objectives.

(Gronlund, p. 18)

Each member of our section consulted the bibliography related to objectives in order to arrive at a desired procedure for stating them. In each particular case, as expected and desired, method of operanda and choice of skills varied. In general, though, it may be stated that two of our common denominators were Gronlund's book mentioned above, and Munby's Communicative Syllabus Design. The first was a valuable tool for stating objectives clearly and meaningfully, and the second provided a selection of skills which applied to many of our specific needs and requirements. We were then in a position to select and define the language skills that would, it was hoped, enable the students to satisfy their needs as stipulated.

4. Skills Selection:

The Needs Analysis disclosed our main areas of concern. They were reading comprehension, listening comprehension, speaking and writing, in that order. The last two skills varied in hierarchy of importance within the needs analysis of each field of study. Thus, the general core objectives stated for for all ESP courses at the USB deal with reading comprehension and listening skills. Descriptions of speaking and writing skills are to be found for each individual course in their respective lists of objectives.

Reading materials selected reflect the semantic and syntactic structures of English found in the learners' specialty course materials. The learners, therefore, need to be taught a strategy of reading which allows them to understand authentic texts without the aid of the teacher or constant use of the dictionary. Basically, it is important for our students to be able to scan any of their text materials to get a general idea of its content, as well as to be able to understand important information in a specific part of a whole text in detail.

When making objectives for each specific career course, it is important to remember that although each particular field has its own specific vocabulary items, it is still part of the English language in general. So, we have the "same language employed for similar and different uses employing similar and different usages." The different usages and uses refers to "items and patterns that are identified as specific to particular subject specializations or vocational/occupational roles." (Mackay and Mountford, 1978, p. 25).

Allen and Widdowson describe two aspects of language learning that we have taken into consideration:

> a. the recognition of sentence use in acts of communication, that is, understanding "rhetorical coherence of discourse," and,
> b. the recognition and manipulation of devices used to join sentences and form passages. They are referred to as "grammatical cohesion of a text."
> (Allen and Widdowson, 1978, p. 58)

Our students have had a great deal of practice with grammatical structures. Although this competence is considered to be mostly a passive one due to the fact that, as indicated by the student profiles, in the majority of cases these structures were studied in a passive-receptive fashion rather than in a productive-active form, the skills we have chosen relate mainly to reading comprehension.

At this point I would like to clarify, as Mackay and Mountford do, that it is a mistake to regard reading skills as passive. In order to read effectively, the learner must perceive and interpret grammatical and lexical meaning as well as rhetorical structure. Instead of "passive," a more appropriate term would be "perceptive." (Mackay and Mountford, p. 136).

But, what about grammar objectives? That no specific objectives refering to grammatical stuctures were stipulated does not mean to say that grammatical competence is not important. Nonetheless, we feel that it takes a second place to communicative competence and can be dealt with through the other objectives as the need arises. Grammar structures can be considered, for the most part, as they appear in context or when they present particular problems to the students.

Writing reinforces reading comprehension. The same might be said about listening and speaking skills, although owing to time limitations, we cannot deal with the latter in a primary way. Being confronted with sentence structure and relationships between sentences, the writing practice enables the students to improve their reading competence and vice-versa. For this reason, some of our specific objectives for each course include writing and listening as a reinforcement of reading.

Our Needs Analysis also disclosed many and varied reading comprehension needs. It was, however, necessary to narrow down or limit objectives for each of our six courses in view of the time constraint imposed by course schedules (i.e. three to four hours a week for a duration of one or three trimesters a year. A trimester is approximately twelve weeks in duration). Other constraints that in some cases had to be taken into account when designing course objectives were the following:
The objectives:

a. would be aimed at students with different levels of language competence, from low intermediate to almost native speaker abilities.

b. should take into consideration that in some cases students would have a limited amount of time to deal with their ESP course due to the many other university course requirements.

c. should be flexible enough to be used by a different professor at a different time with a different set of students. It is precisely for this reason that the specific objectives developed for each field of study are broad enough to allow for varieties in different teacher methodologies, and yet, precise and clear enough to establish the language objective required.

Having established general as well as specific objectives for each ESP course, we sat down to establish common core objectives for all of the courses. This was a problematic stage for us due to the variance of each course. How could they possibly be compared? This was juggled back and forth until we developed our list of 'core objectives' for the ESP Section. We realize the value of having done this in that it does provide an overall view of what all ESP courses contain. Nevertheless, it is important to refer to each teacher's individual set of objectives for a clear and realistic picture of each individual ESP course.

Following this paper is the list of common core objectives for the ESP Section. After this list, the general and specific objectives of each ESP course will be given in alphabetical order.

5. Consierations for the Future:

The objectives experience section of the ESP project brought to light a consideration about the length of some of our ESP courses with regards to the achievement of the objectives required by the students. The stating of objectives indicates that in order for these to be satisfied in a more complete fashion, the courses with time limit factors of one trimester should be extended to two or ideally, three trimesters. It is felt that one trimester allows for a general 'touching upon' the objectives as a whole, but that the students would benefit from having more experience and time to deal with them. This is heart-felt by the students themselves who have indicated so in the short-term evaluation of materials questionnaire applied two or three times during a trimester. (Please refer to Part IV of this project.)

A second consideration for the future involves reviewing our specific objectives with the following idea in mind: with more experience and time applying our present objectives, we will have a clearer and more precise idea on how to formulate them even more specifically than they are at present. By 'specifically' it is meant 'in more intructional terms.' This in turn, will promote a more satisfying and effective teaching-learning experience.

In reference to future investigation on objectives, an idea has come to the surface. It involves the student as an individual in the ESP classroom. As was mentioned in the Skills Selection part of this paper, learner competence varies from low intermediate to almost bilingual levels. It is felt that the incorporation of a methodology geared toward individual student needs and demands would, again, result in a more satisfying teaching-learning experience. This would involve diagnosing the students on an individual basis and then acting on these requirements by setting up individual learner-centered objectives.

6. Conclusion:

The formulation of objectives can be a tedious undertaking, but the fruits derived are very well worth the effort. As Young mentions in the "values of well stated objectives" mentioned above, the formulation process makes you more aware of the system within which you work. The process also brings forth insights about yourself, your course and your students which can be invaluable.

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ANNEX 1

GENERAL CORE OBJECTIVES FOR THE ESP SECTION

The ESP courses are designed for students of Architecture, Biology, Computer Science, Electronic Engineering, Mathematics and Urban Planning. Their objective is to familiarize the students with the specific aspects of natural language tipical of each field of specialization. In general terms, the purpose is for the students to actively dominate the specific terminology of their special field and to improve their knowledge of English. The following skills will be dealt with: reading and oral comprehension, using oral expression and writing as a means of reinforcing the former. The emphasis given to the latter will depend on the needs of the students as stipulated in their Needs Analysis.

As mentioned above, oral expression and writing serve to reinforce reading and oral comprehension. They, therefore, do not form part of the general objectives listed below.

Following is a graded list of the general objectives common to the ESP courses at the U.S.B:

READING COMPREHENSION

The student will be able to understand written discourse by:

-skimming to obtain the general impression of a text.

-scanning to locate specifically required information.

-distinguishing the main idea of a text from supporting details.

-recognizing the structures and vocabulary that are typical of the following functions: definition, description, classification, comparison, process, instructions, sequence, hypothesis, inference, cause-effect, arugument, eveluation.

-identifying the principal components of a text: introduction, development and conclusion.

-recognizing indicators of discourse for:
a. introducing an idea
b. developing an idea
c. transition to another idea
d. concluding an idea
e. emphasizing a point
f. explaining or clarifying a point already made

-understanding relations that exist between parts of a sentence, of a paragraph and of a text through grammatical cohesion and lexical cohesion devices.

-deducing the meaning and use of unfamiliar lexical items through understanding word formation (e.g. stems, roots, affixation, derivation, compounding) and by recognizing contextual clues.

-understanding conceptual meaning of what is read or heard, especially:
a. quantity and amount
b. definiteness and indefiniteness
c. comparison and degree
d. time (tense, aspect)
e. location, direction
f. means, instrument
g. cause, result, purpose, reason, condition, constrast

-classifying supporting ideas in a paragraph according to exemplification, clarification and conclusion.

-reconstrucing information or ideas explicitly stated in a text by developing out-lines, summaries or syntheses.

-reformulating explicitly stated information in a text by expanding or synthesizing as the case may be.

-understanding information in a text not explicitly stated through making inferences such as:
a. inferring main ideas
b. " supporting details

c. inferring sequence
d. " comparisons
e. " cause-effect
f. predicting outcomes

-distinguishing between inferences, opinions and facts..

-deciding whether information presented in a text is adequate, valid or accurate.

ORAL COMPREHENSION

In oral as well as written discourse there exists an interrelationship between an emitter (i.e. speaker-writer) and a receptor (i.e. listener-reader). When a student is confronted with an oral text, it is necessary, for example, that he/she: distinguish main ideas from secondary ones; recognize when the speaker indtroduces a new topic or idea; recognize indicators of discourse used to develop and to conclude ideas. For this reason the general core objectives for oral comprehension are the same as those listed for reading comprehension, keeping in mind though, that the former reinforce the latter and are secondary in importance

Bibliography:

The general core objectives mentioned above were compiled from all the individual ESP course objectives. For references, therefore, please refer to the six different course objectives.

ENGLISH FOR ARCHITECTURE
IDM. 311, 312, 313

English for Architecture (IDM. 311, 312, 313) is a three trimester obligatory course for architecture students who have completed the first year general scientific English course. It is generally taken in the students' second year of studies. The main emphasis of the course is on reading extracts from texts, journals and other printed material about architecture, without actually attempting to teach subject matter. In view of the specific characteristics of the career of architecture, and hence the needs of those students taking the course, the language skills have been assigned varying degrees of importance, as follows: 1) Reading Comprehension; 2) Oral Comprehension; 3) Speaking; 4) Writing. Of these, reading and oral comprehension are primary objectives while speaking and writing are introduced in the interest of greater motivation and dynamism in the classroom. Audiovisual materials, such as videotapes, films, slides, etc., are used for developing oral comprehension. Both the general objectives appearing immediately below and the specific objectives that follow them have been formulated with reference to the career characteristics and student needs mentioned above. Similarily, the language functions and vocabulary to be highlighted reflect those most frequently encountered in texts related to architecture.

GENERAL OBJECTIVES FOR "ENGLISH FOR ARCHITECTURE"

1. The student will understand texts written in English dealing with major themes in architecture.
2. The student will understand spoken language in English related to architectural topics.
3. The student will participate in discussions related to topics dealt with in written texts.
4. The student will write short answers to questions asked in English about the written and oral texts studied.

OBJECTIVES
IDM. 311, 312, 313

I. Literal Comprehension. The student should be able to understand information and ideas which are explicitly stated in the text by

- 1.1 distinguishing the main idea from supporting details by differentiating
    - 1.11 primary from secondary significance
    - 1.12 the whole from its parts
    - 1.13 a process from its stages
    - 1.14 category from exponent
    - 1.15 statement from example
    - 1.16 fact from opinion
    - 1.17 a proposition from its argument

- 1.2 deducing the meaning and use of unfamiliar lexical items through
    - 1.21 understanding word formation:
        - 1.211 stems/roots
        - 1.212 affixation
        - 1.213 derivation
        - 1.214 compounding
    - 1.22 recognizing contextual clues

- 1.3 understanding conceptual meaning, especially
    - 1.31 quantity and amount
    - 1.32 definiteness and indefiniteness
    - 1.33 comparison; degree
    - 1.34 time(tense, aspect)
    - 1.35 location, direction
    - 1.36 means; instrument
    - 1.37 cause, result, purpose, reason, condition, contrast

- 1.4 understanding relations within the sentence, especially
    - 1.41 elements of sentence structure
    - 1.42 modification structure (pre-; post; disjunctive)
    - 1.43 negation
    - 1.44 modal auxiliaries
    - 1.45 intra-sentential connectors
    - 1.46 complex embedding

- 1.5 understanding relations between parts of a text through lexical cohesion devices of
    - 1.51 repetition
    - 1.52 synonymy
    - 1.53 hyponymy
    - 1.54 anthesis
    - 1.55 apposition

- 1.6 Understanding relations between parts of a text through grammatical cohesion devices of
    - 1.61 reference (anaphoric and cataphoric)
    - 1.62 comparison
    - 1.63 substitution
    - 1.64 ellipsis
    - 1.65 time and place relators
    - 1.66 logical connectors

1.7 Recognizing indicators in discourse for
  - 1.71 introducing an idea
  - 1.72 developing an idea (eg. adding points, reinforcing argument
  - 1.73 transition to another idea
  - 1.74 concluding an idea
  - 1.75 emphasizing a point
  - 1.76 explanation or clarification of point already made

1.8 Identifying the main point or important information in a piece of discourse through
  - 1.81 recognizing verbal cues (eg. 'The point I want to make is.
  - 1.82 identifying topic sentence in paragraphs of
    - 1.821 inductive organization
    - 1.822 deductive organization

II. Reorganization. The student should be able to analyze and reorganize ideas or information explicitly stated in a selection by

2.1 classifying people, things, places, and/or events into categories through
  - 2.11 differentiating the whole from its parts
  - 2.12 differentiating category from exponent
  - 2.13 distinguishing between statement and example

2.2 reconstructing the information in outline form, through
  - 2.21 quoting verbatim from the selection
  - 2.22 paraphrasing statements from the selection
  - 2.23 selecting a statement which paraphrases information explicitly presented in the selection

2.3 restating (transcoding) information, through
  - 2.31 completing a diagram/table/graph
  - 2.32 constructing one or more diagrams/tables/graphs

2.4 simplifying (reducing) a selection, through isolating salient points in the selection, involving
  - 2.41 cf. 2.11, 2.12, and 2.13 above
  - 2.42 distinguishing a process from its stages
  - 2.43 distinguishing a proposition from its agrument
  - 2.44 differentiating primary from secondary significance
  - 2.45 recombining contrasting items
  - 2.46 matching related information
  - 2.47 rearranging information for comparison and contrast

2.5 simplifying (reducing) a selection, through rejecting redundant or irrelevant information and items such as repetition, circumlocution, digression, examples, analogies, etc.

N.B. In practice, the process described in 2.4 and 2.5 are simultaneous and complementary. This mutual interdependence has not been emphasized in the interest of preserving clarity in the objectives.

2.6 expanding the salient or relevant points in a selection, through
  - 2.61 identifying a specific idea or topic presented
  - 2.62 detecting the underlying idea or point of fact

- 2.7 synthesizing explicit ideas or information obtained from more than one source, involving
    - 2.71 combining any/all of the above mentioned reorganizational behaviour

Note: This cognitive dimension of reading and aural comprehension presupposes a prior achievement of the objective of *literal comprehension* and the mastery of the required language skills.

III. *Inferential Comprehension.* The student should be capable of formulating conjectures and hypotheses based on the text by

- 3.1 understanding information in the text, not explicitly stated, through
    - 3.11 making inferences, such as
        - 3.111 inferring main ideas
        - 3.112 inferring supporting details
        - 3.113 inferring sequence
        - 3.114 inferring comparisons
        - 3.115 inferring cause and effect
        - 3.116 predicting outcomes
    - 3.12 understanding figurative language

Achieving the above objective (3.1) will require

- 3.2 Understanding the communicative value(function) of sentences
    - 3.21 with explicit indicators
    - 3.22 without explicit indicators
        e.g. relationships of result, reformulation, etc., without 'therefore', 'in other words', etc.

- 3.3 Interpreting the text by going outside it,
    - 3.31 using exophoric reference
    - 3.32 'reading between the lines'
    - 3.33 integrating data in the text with own experience or knowledge of the world

- 3.4 recognising unstated assumptions

- 3.5 distinguishing between fact and inferences

IV. *Evaluation.* The student should be capable of evaluating the ideas or information presented explicitly or implicitly in a selection by

- 4.1 comparing and contrasting those ideas with *external* criteria (provided by other written or audio-visual sources, for instance)

- 4.2 comparing and contrasting those ideas with *internal* criteria (provided by the student's own knowledge or experience)

The attainment of objectives 4.1 and 4.2 will entail

- 4.3 appraising the plausibility of a statement by
    - 4.31 discriminating between reality and fantasy (fact vs. ficti
    - 4.32 detecting contradictions
    - 4.33 identifying ambiguity
    - 4.34 identifying assumptions

- 4.4 analyzing the intent and effectiveness of the author by

4.41 selecting discourse indicators employed in the selection to
    4.411 introduce an idea
    4.412 develop an idea (e.g. adding points, reinforcing arguments)
    4.413 make a transition to another idea
    4.414 conclude an idea
    4.415 emphasize a point
    4.416 explain or clarify a point already made
    4.417 anticipate an objection or contrary view

4.5 separating fact from opinion by
    4.51 identifying the discourse indicators mentioned in 4.41 above
    4.52 evaluating the function of modals in the selection
    4.53 detecting the use of verbs of opinion, such as, think, believe, suppose, presume, consider, etc., preceded by a proper noun or personal pronoun

4.6 deciding whether the information presented is adequate, accurate or valid by
    4.61 criticizing the logical relationship between the premises of an argument and its conclusion (e.g. in deductive reasoning)
    4.62 indicating whether a statement is sufficiently specific
    4.63 concluding whether a generalization is justified (e.g. in inductive reasoning)
    4.64 determining whether a definition is adequate
    4.65 evaluating the relevance of supporting detail to the statement of the problem or main idea of the selection

V. Oral Comprehension. The student should be able to understand spoken English by listening to:

5.1 the teacher talk in class
5.2 the teacher read a given text
5.3 a recorded passage
5.4 a guest speaker invited by the teacher to speak on a given topic related to architecture.
5.5 and watching a slide program .
5.6 and watching a film related to the field of architecture

The student will able to do the above by:
5.7 recognizing the use of stress in connected speech
5.8 understanding intonation patterns
5.9 interpreting attitudinal meaning

VI. Oral Production. The student will be able to express himself in oral English using short and simple sentences to

6.1 communicate orally with the teacher in class
6.2 answer questions orally
6.3 present an oral report on a given topic (10 to 15 minutes)

VII. Writing. The student should be able to write in English in order to

7.1 complete written statements by rephrasing information contained in the text
7.2 complete a sentence or paragraph in a meaningful way
7.3 fill in the blanks of a paragraph by choosing from given options or by providing appropriate words
7.4 answer written questions by modifying slightly the information given in the text, due to an inference
7.5 answer written questions by having to restate the information presented in the text, due to an inference
7.6 write words or sentences dictated by the teacher
7.7 reorder scrambled sentences or paragraphs into meaningful and coherent paragraphs or texts respectively

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Barret's Taxonomy in "What is 'reading'?: some current concepts," by Theodore Clymer; from Reading Today and Tomorrow, by Amelia Melnik and John Merrit; London: University of London Press Ltd., 1972, pp. 56-60.

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GENERAL AND SPECIFIC OBJECTIVES FOR THE COURSE
"ENGLISH FOR BIOLOGISTS" (IDM 217 - 218 - 219)

This course has been designed for students of Biological Sciences in the first and second years of their career (without taking into account their first basic university year). It consists of three trimesters and the subject matter to be treated during the academic year will deal with topics of the specialty by means of authentic texts and audiovisual programs (by "authentic" we mean texts taken from the student's career bibliography. This includes: textbooks, general and professional magazines, manuals and miscellaneous articles).

In this course , emphasis will be given to the following skills: in orde of priority, Reading, Listening Comprehension, Oral Expression and Writing. "Reading" constitutes the main objective of the course and the other three will be developed as a means of reinforcing it and complementing the student's knowledge of English in Biological Sciences.

I. READING: the student will be able to read genuine texts in various styles of literature in Biological Sciences efficiently (without difficulty nor constant use of the dictionary) so that he is able to manipulate written discourse to meet his needs as a student of Biology. Within this broad objective, the student should attain the following levels of reading proficiency: Literal Comprehension(understand information explicitly stated in the text), Application(transfer or relate information read to other situations), Reorganization(analize and reorganize ideas explicitly or implicitly stated in the text) and Evatuation(evaluate information explicitly or implicitly stated in the selection). In order to accomplish this general objecti the student will:

1. skim to obtain the general impression of the text by:
    1.1. understanding the use of
        -graphic presentation: pictures, headings, sub-headings, numbering, indentation, bold print, footnotes.
        -table of contents and index
        -cross-references
        -card catalogue
        -phonetic transcription
    1.2. reading and understanding the first sentence of each paragraph

2. scan to locate specifically required information on
    2.1. a single point, involving a simple or complex search
    2.2. more than one point, involving a simple or complex search.

3. distinguish the main idea from supporting details by differentiating:
    3.1. primary from secondary significance
    3.2. the whole from its parts
    3.3. a process from its stages
    3.4. a statement from example
    3.5. fact from opinon
    3.6. a proposition from its argument

4. identify the main components of written discourse: introduction, body and conclusion in a given text.

5. grasp the author's leading propositions by dealing with the most important sentences (underline topic sentences, select the title for a passage, etc.).

6. become familiar with the functions of language most commonly used in Biological Science texts: definition, instructions, classification, description, processes, ocmparison(similarities and differences), relationships of cause-effect, hypothesis, argument, opinion and fact, and evaluation. Emphasis will be given to the first six functions mentioned above. The student will understand the meaning and use of these functions by:

    6,1. recognizing the lexical units typical of each function (e.g. definition: "is called", "is termed","is known as")
    6.2. understanding the grammatical structures by which the function is expressed (e.g. instructions: the constant use of the passive voice and the modal auxiliaries, and the imperative mood in order to express indirect and direct instructions respectively)
    6.3. discriminating between the different types of language functions
    6.4. understanding the communicative value of written discourse without explicit indicators(e.g. relationship of cause-effect, result, reformulation without "consequently, therefore, in other words", etc.)
    6.5. identifying the different types of definitions (nominal/real, simple/extended)
    6.6. being capable of extracting from a text the necessary elements in order to define a term (e.g. read the following passage and and write the definition of the underlined word using the information provided in the text:"Each scale of a female cone bears two sporangia on its upper surfaces. Each sporangium is encased in an integument with a small opening, the micropyle, at the end".Keeton, 833)
    6.7. reordering a set of scrambled instructions
    6.8. recognizing a set of simple and complex instructions in a given text and the number of steps involved
    6.9. identifying the different criteria used to classify plants, animals and any given biological structure
    6.10. recognizing the different levels of classification in written discourse
    6.11. recognizing and knowing the different levels of biological classification (e.g. family, groups, sub-groups, class, phylum,etc.)
    6.12. expressing in diagrammatic display (outline, table, tree diagram) a clasification presented in written discourse or speech.
    6.13. distinguishing between the different types of description (spatial, structural, etc.) and understanding the vocabulary used to describe a structure or a feature.
    6.14. labelling a drawing of a given structure using its description presented in written discourse or speech.
    6.15. identifying the steps involved in a process and recognizing their function as only part of a process and not the process as such.
    6.16. distinguishing between different types of processes (explanatory, descriptive, definitive, etc.)
    6.17. transcoding into diagrammatic display a process presented in written discourse or speech.
    6.18. distinguishing between contrast(which only deals with differences) and comparison (which deals with similarities as well as differences).
    6.19. classifying and tabulating information for comparison and contrast
    6.20. distinguishing between the relationship of cause-effect, and result.

6.21. distinguishing a proposition from its argument.
6.22. making inferences in order to predict results.
6.23. distinguishing agreement from disagreement.
6.24. identifying inductive and deductive reasonings.
6.25. understanding hypothesis and suppositions and recognizing proofs and justifications.
6.26. identifying concession, generalization and conclusion.
6.27. distinguishing opinion from fact.
6.28. deciding whether the information is valid, adequate or accurate.
6.29. interpreting the text by going outside it by "reading between the lines" and integrating data in the text with own experience or knowledge of the world.
6.30. perceiving the intention and the tone of a text.

7. recognize indicators in discourse for:

7.1. introducing an idea
7.2. developing an idea
7.3. transition to another idea
7.4. concluding an idea
7.5. emphasizing a point
7.6. explanation, clarification of point already made
7.7. anticipating an objection or contray view

8. deduce the meaning of unfamiliar lexical items through:

8.1. understanding word formation (stems, roots, affixation,etc.)
8.2. contextual clues

9. understand the meaning and use of typical biological vocabulary by:

9.1. recognizing the Latin origin of biological terminology
9.2. distinguishing between singular and plural of irregular nouns (e.g. flagellum (sing.)----- flagella (plu.)
9.3. recognizing and writing properly the two-part Latin name of organisms (e.g.:Homo sapiens- the first name Homo is generic; it indicates the genus man belongs to and should be written in italics or underlined and with an initial capital letter. The second name "sapiens" is a specific name indicating in this case the species man is and it should begin with a small letter).
9.4. discriminating between the technical and common meaning of the term.

10. understand conceptual meaning especially:

10.1. quantity and amount
10.2. definiteness and indefiniteness
10.3. comparison, degree
10.4. time (especially tense and aspect)
10.5. location, direction
10.6. means, instruments
10.7. cause, result, purpose, reason, condition, contrast.

11. understand relations within the sentence, especially:

11.1. elements of sentence structure
11.2. modification structure
11.3. negation
11.4. modal auxiliaries
11.5. intra-sentential connectors
11.6. complex embedding
11.7. focus and theme
11.8. meaning and implication of voice of verbs

11.9. different forms of verb tenses
11.10. complex compound nouns

12. understand relations between parts of a text through lexical cohesion devices of:

    12.1. repetition
    12.2. synonymy
    12.3. antithesis
    12.4. apposition
    12.5. lexical set, collation

13. understand relations between parts of the text through grammatical cohesion devices of:

    13.1. reference
    13.2 comparison
    13.3. substitution
    13.4. ellipsis
    13.5. time and place relators
    13.6. logical connectors

14. the student should be able to transfer or relate the information read to new situations by:

    14.1. constructing charts, graphs, tree diagrams, etc.
    14.2. labelling diagrams
    14.3. giving exampels related to what he has read.

15. break down the material to its component parts so its organizational strucuture may be understood

16. outline the information presented in the text

17. understand information in the text, not explicitly stated, through:

    17.1. making inferences, such as:

        inferring main ideas / supporting details
        inferring sequence
        inferring comparisons
        inferring cause and effect
        predicting outcomes

    17.2. understanding figurative language

    17.3. recognizing unstated assumptions

    17.4. distinguishing between fact and inferences

18. Extract salient points to summarize:

    18.1. the whole text
    18.2. a specific idea, topic or point of the text
    18.3. the underlying idea or point of the text

19. expand salient points into summary of:

    19.1. the whole text
    19.2. a specific idea or topic in the text

20. reduce the text through rejecting redundant or irrelevant information

21. synthesize explicit information from one than one source to compose a new whole.

22. recognize strucutures used to express:

    22.1. denial and affirmation
    22.2. agreement and disagreement
    22.3. fact, hypothesis and neutrality
    22.4. approval, disapproval.
    22.5. valuation

23. the student should capable of evaluating the ideas or information presented implicitly or explicitly in a selection by:

23.1. comparing and contrasting those ideas with external criteria (provided by other written or audio-visual sources, for instance)

23.2. comparing and contrasting those ideas with internal criteria (provided by the student's own knowledge or experience)

23.3. the student should: discriminate between reality and fantasy, detect contradictions, identify ambiguity, identify assumptions.

23.4. separating fact from opinion by:

evaluating the function of modals in the selection

detecting the use of verbs of opinion such as: think, believe, suppose, presume, consider, etc, preceded by a proper noun or personal pronoun.

23.5. deciding whether the information presented is adequate, accurate or valid by:

-criticizing the logical relationship between the premises of an argument and its conclusion
-indicating whether a statement is sufficiently specific
-concluding whether a generalization is justified
-determining whether a definition is adequate
-evaluating the relevance of supporting detail to the statement of the problem or main idea of the selection.

II. LISTENING COMPREHENSION: the student should be able to understand spoken English by:

1. listening to the teacher speak in class
2. listening to the teacher read a given passage
3. listening to a recorded passage
4. listening to a guest speaker invited by the teacher to speak for 10 or 15 minutes on a given topic of Biology
5. listening and watching a slide program
6. listening to and watching a 30 minute film (max.) related to his field.
7. recognizing the use of stress in connected speech
8. interpret attitudinal meaning

III. ORAL EXPRESSION: the student should be able to express himself in oral English using short and simple sentences in order to:

1. be able to communicate with the teacher orally in class
2. answer questions orally
3. present an oral report on a given topic (10-15 minutes)

IV. WRITING: the student should be able to write in English in order to:

1. complete written statements by rephrasing information contained in the text
2. do grammatical exercises that ask students to make transformations, substitutions and the like
3. fill in the blanks of a paragraph by choosing from given options or by providing appropriate words
4. answer written questions by modifying slightly the information in th text
5. answer written questions by having to restate the information in th text, due to an inference

6. write words or sentences dictated by the teacher(these may also be taped)
7. make up questions pertaining to the content of a given text
8. reorder scrambled sentences into their normal syntactic order
9. reorder scrambled sentences or paragraphs into a meaningful and coherent paragraph or text respectively
10. write tree diagrams, outlines, summaries and synthesis using information provided in written discourse or speech.

****

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1. Set of Objectives written by Prof. Sofía Vargas and Prof. Sharon Owen de Ross-Jones, Sartenejas, April, 1977.
2. Gronlund, Norman, Stating Behavioral Objectives for Classroom Instruction, London: Collier-Macmillan, 1970.
3. Munby, John, Communicative Syllabus Design, London: Cambridge University Press, 1978 (chapter 9, pp. 176-188)

OBJECTIVES FOR THE COURSE "SPECIAL ENGLISH FOR COMPUTERS"

This course is for students of Computer Science in their Second or Third Year Career level. It intends to familiarize the student with the specific natural language aspects of Computer Science so that he can actively master computer terminology and improve his ability to communicate in English with professionals of the field.

The subject matter of the course is limited to a trimester. The modules to be treated during this time period will deal with topics of the specialty by means of texts and audio-visual programs.

During this period, emphasis will be given to the following skills: Reading, Listening Comprehension, Oral Expression and Writing. The order of the last two being interchanged in certain modules.

GENERAL OBJECTIVES:

1. The student will understand and recognize technical written texts pertaining to the area of Computers.
2. The student will understand spoken language related to Computers through various media.
3. The student will actively dominate the terminology of Computers avoiding translation whenever possible.
4. The student will differenciate Natural Language from Computer Language and identify the Grammar involved.
5. The student will answer briefly in writing or orally and in English to questions asked about the subject under discussion.

SPECIFIC OBJECTIVES:

1. The student will recognize and apply basic computer terms related to:
    - Data Processing
    - Data Communications
    - System Types
    - Number Systems
    - Flowcharting
    - Programming Languages and
    - Computer Personnel

2. The student will write and/or explain orally simple step by step sequences.
3. The student will identify the grammar patterns peculiar to computer-related texts as found in: definitions, explanations, comparisons, contrasts, etc.
4. The student will discuss the content of texts via:
   a) short written or oral answers;
   b) key words:
   c) observations on paragraph organization;
   d) comments on sequence of concepts exposed.
5. The student will develop reading skills via:
   a) skimming and scanning techniques;
   b) knowing when to skim and when to scan;
   c) doing the above effectively and selectively.
6. The student will improve his comprehension by:
   a) recognizing the difference between the main ideas and supporting details in expository reading;
   b) drawing inferences from what read;
   c) synthesizing what read;
   d) amplifying what read.
7. The student will recognize the different types of graphic presentations and label them when blank.
8. The student will describe the:
   a) components of computer devices;
   b) functions of computer devices;
   c) different types of processing;
   d) specialized equipment;
   e) various topologies and switching techniques.
9. The student will identify the type of equipment involved according to certain categories (as complement to 8.e)).
10. The student will list application areas and specify advantages and disadvantages for each.
11. The student will understand computer-related language heard in Audio-Visual programs.

The teacher will act as "Course Manager" to help out surmount difficulties and questions that come up related to the language aspects that the student confronts when he/she is exposed to such materials.

The course is divided into modules. Each module has objectives that state clearly what the student is expected to understand and learn from the text and materials used. The objectives are stated at the beginning of each lesson so that he/she does not have to guess what he/she is to understand and what he/she is expected to learn.

Each lesson will have Test Items to verify his/her progress and Additional Resources to serve as reference tools to help him/her meet the objectives.

The evaluation of the course will involve two aspects:

60% of the Grade will reflect 2 Main Tests
40% of the Grade will be based on the continuous evaluation-results from the Test Items.

The course is reinforced by Audio-Visual Programs which are part of the modules or related to the subject matter in general. Their intention is to complement the material given in class and to expose the student to situations he/she will find in their professional activity in the future. The student will furthermore have access to those programs during extra language laboratory hours so that he/she may listen to them as frequently as necessary to fully understand the content of the programs.

Bibliography:

Digital, Introduction to Data Communication Concepts, 1975.

Harris, Martin L., Introduction to Data Processing, Wiley, 1979.

Keegel, John, The Language of Computer Programming in English, Regents, 1979.

GENERAL AND SPECIFIC
OBJECTIVES

Objectives for IDM 511 : English for Electronic Engineers

This is a one trimester elective course designed for students of Electronics who are beginning their career. The overall objective is to enable the student to read genuine authentic texts in various styles of literature in Electronics effectively and with critical understanding. By "critical understanding" we mean the ability to manipulate the texts in order to meet his needs as a student of Electronics. By "effectively" we mean without the constant use of the dictionary. Due to the nature of the field of Electronics great emphasis will be given to the obtaining of vocabulary related to that field in the manner stated in the specific objectives below.
The skills - reading comprehension, listening comprehension, oral expression and writing -, will be emphasized in that order. Besides reading materials, the course will make use of films and of the laboratory to reinforce the objectives.

In this course the student will :

a. become familiar with different types of literature used in Electronics (i.e. manuals, basic texts, professional magazines)

b. become familiar with the functions of language most commonly used in Electronics (description - especially of processes - definition , instructions, cause,effect , relationships)

c. skim to obtain the general impression of the text.

d. scan to locate specifically required information.

e. distinguish the main idea from supporting details (e.g. make outlines)

label paragraphs according to type of information found in each (i.e. . functions).

f. classify supporting ideas in a paragraph according to examplification, clarification, and conclusion.

g. grasp author's leading propositions by dealing with the most important sentences (underline topic sentences, select the best title for a passage).

h. define problem author has tried to solve (i.e. make summaries of information presented in given text or write a condensed version of a text).

i. discriminate between opinion and fact.

j. understand explicitly stated information (select statement that best match the literal meaning of the passage)

k. understand relations within the sentence as well as understand relations between parts of a text
  a. elements of sentence structure
  b. negation
  c. intrasentencial connectors
  d. complex embedding

l. understand relations between parts of a text through grammatical cohesion devices of
  a. reference
  b. comparison
  c. substitution
  d. time and space connectors
  e. logical connectors

m. recognize indicators of discourse for :
  a. introducing an idea
  b. developing an idea
  c. transitions to another idea
  d. concluding an idea
  e. emphasizing a point
  f. explaining or clarifying a point already made

n. identify meaning of specific terms :
  - writes a definition of the term using his own words
  - selects the definition that fits a given term
  - selects the term that fits a given definition
  - states a synonym for a given term
  - states an antonym for a given term
  - states the relationship of the term to a second term
  - describes the difference between the term and a second term
  - explains the difference between the technical meaning and the common meaning of the term
  - states term or phrase in his own words
  - gives e.g. of use of word in context
  - relates terms that have the same meaning
  - states the concept or principle that fits the term

o. deduce the meaning and use of unfamiliar lexical items through
  a- understanding word formation (e.g. stems and roots)

p. understand conceptual meaning, especially
  - quantity and amount
  - definiteness and indefiniteness
  - comparison ; degree
  - time
  - location / direction
  - means
  - cause, result, condition, contrast, purpose, reasons.

q. understand information in the text not explicitly stated (describes ideas that are implied in the content of a passage).

r. reduce the text through rejecting redundant or irrelevant information and items

s. transcode information presented in diagrammatic display (e.g. identifies the parts on a diagram for an electrical current in English)

t. transcode information in writing into simple diagrammatic display.

u. appreciate the difference between expression in written English and Spanish.

v. recognize Spanish equivalents for English terminology in the field.

w. understand basic sentence patterns for oral understanding
  - classes will be given in English
  - use of films with pre and post activities to practise aural skills (if films are available).

z. express in writing simple concepts and ideas (e.g. dimensions and shapes of objects and their relative position ; simple processes)

y. understand the use of basic reference skills especially in relation to the use of the "hemeroteca".
  - graphic presentation (heading ; footnotes ; bold prints ; references)
  - indexes (i.e. Science Citation Index)
  - cross referencing

z. apply reading techniques acquired in class to outside situations
  a. apply vocabulary acquired in class to understand outside materials.

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Set of objectives written for First YearProgramme at USB, Departamento de Idiomas, Sartenejas, 1977, April.

2. Gronlund Norman, Stating Behavioral objectives for Classroom Instruction, London ; Collier MacMillan ,1970.

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INGLES PARA LA CARRERA DE MATEMATICAS - IDM 414 / IDM 415 / IDM 416

OBJECTIVES

This course is to be taken by all the students of Mathematics, at any time of their career, although preferably in the first year. It is also recommended that the student take the three trimesters in a sequence of consecutive trimesters. This is an obligatory course, and its goal is to enable the student to work efficiently with material which is obtainable only in English. In order to reach the objectives of this course, the teacher will use authentic printed material, audio-visual aids and lectures. The course is structured in such a way that the skill most regularly practiced will be reading, followed by listening comprehension, then oral expression and finally written expression.

General Objectives:

1. The student will understand mathematical texts written in English.
2. The student will understand spoken mathematical language in English.
3. The student will relate mathematical developments to historical events and periods with the aid of readings.
4. The student will write short answers to questions asked in English about the texts studied.

Specific Objectives:

1.a The student will know mathematical vocabulary related to

  1.a.i numbers and numerals:
  - read aloud numbers
  - write down dictated numbers
  - distinguish between numbers and numerals
  - recognize the digits in a given number
  - distinguish between the decimal point and the comma used to separate positions

- understand conclusions based on statistical data

1.b The student will know the communicative grammar needed for the understanding of mathematical language (written and/or oral)

1.b.i know words of general or inclusive meaning
1.b.ii know words of distributive meaning
1.b.iii distinguish definite and indefinite meaning
1.b.iv recognize relations between ideas expressed by nouns
1.b.v recognize structures used to express time, tense and aspect
i.b.vi know expressions used to express frequency
i.b.vii recognize structures used to express place, direction and distance
1.b.viii distinguish between manner, means and instrument
1.b.ix recognize structures used to express cause, reason and purpose
1.b.x distinguish between conditions, contrasts and comparisons
1.b.xi recognize structures used to express addition, exception and restriction
1.b.xii distinguish between information, reality and belief
1.b.xiii recognize elements which relay meaning in connected discourse

2. The student will understand mathematical language used in speeches and conferences.

See the specific objectives enumerated for general objective number 1.

1.a.ii	numerical systems:	- enumerate numerical systems used nowadays and before
1.a.iii	symbols:	- identify the symbols used for mathematical notation when dictated - read the symbols used for mathematical notation
1.a.iv	calculatory science:	- understand instructions given to perform arithmetical operations - understand laws and rules
1.a.v	geometry:	- understand descriptions of geometrical figures - read formulae used to describe geometrical figures - understand hypotheses and suppositions - understand rules and laws - recognize propositions - recognize proofs - understand comparisons
1.a.vi	algebra:	- read equations - apply vocabulary of operations in order to read algebraic problems - understand rules and laws - understand definitions
1.a.vii	statistics:	- understand statistical terminology - recognize data on charts - understand descriptions of charts

3. The student will learn historical facts related to the development of mathematics. The student will

3.a.i	identify mathematical vocabulary used in texts
3.a.ii	distinguish between normal vocabulary and mathematical vocabulary
3.a.iii	identify detailed information
3.a.iv	recognize principal ideas
3.a.v	recognize the logical sequence of ideas
3.a.vi	identify comparisons
3.a.vii	identify contrasts
3.a.viii	recognize relationships of cause and effect
3.a.ix	use scanning and skimming to look for information

4. The student will write short answers to questions asked in English about a given text. In order to do this, the student will

4.a.i	classify information
4.a.ii	summarize the reading selection
4.a.iii	synthesize parts of the readings
4.a.iv	paraphrase given passages
4.a.v	identify answers corresponding to questions
4.a.vi	make inferences related to supporting details
4.a.vii	make inferences related to the sequence of ideas
4.a.viii	make inferences related to the comparison of ideas
4.a.ix	make inferences related to the main idea
4.a.x	make inferences relàted to the cause and effect relationship
4.a.xi	make inferences predicting results
4.a.xii	pass judgement on data and opinions
4.a.xiii	pass judgement on the validity of information
4.a.xiv	pass judgement on the value of information

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GENERAL AND SPECIFIC OBJECTIVES
FOR IDM 211, 212, 213
ENGLISH FOR URBAN PLANNING

These courses have been designed for students of Urbanism in the first year of their career. They are obligatory and consist of three trimesters (one academic year). The purpose of these courses is to prepare students to read texts in English related to the field of Urbanism. The following skills will be dealt with in these courses: reading, listening comprehension, oral expression and writing. As stated before, reading will be the most important skill and the other three will have a secondary importance.

IN THESE COURSES, THE STUDENT WILL:

1. Read efficiently authentic material written in English and related to the field of Urbanism.

   a. skim to obtain the general impression of the text.

   b. scan to locate specifically required information.

   c. distinguish the main idea from supporting details by differentiating:

   -primary from secondary importance
   -the whole from its parts
   -a process from its stages
   -a statement from example
   -fact from opinion
   -a proposition from its argument

   d. identify the main components of written discourse: introduction, body and conclusion in a given text.

   e. grasp the author's leading propositions by dealing with the most important sentences (underline topic sentences, select the title for a passage, etc...).

   f. distinguish the function(s) of the language generally used in this field (description, definition, comparison, cause and effect, argument, hypothesis, opinion and fact, judgment and evaluation.).

   g. identify the grammatical structures by which the functions are expressed (for example in hypothesis: the "if-clauses").

   h. recognize indicators in discourse for:

   -introducing an idea
   -developing an idea
   -transition to another idea
   -concluding an idea
   -emphasizing an idea

   -explanation, clarification of point already made
   -anticipating an objection or contrary view

   i. understand how parts of a text (paragraphs, sentences, etc..) are related through lexical cohesion devices of:

-repetition
-synonymy
-hyponomy
-antithesis
-apposition
-lexical set /collocation
-pro-forms/ general words

j. understand information in the text, not explicitly stated, through

-making inferences
-understanding figurative language
-recognizing unstated assumptions
-distinguishing between fact and inferences

k. summarize the main ideas from the text.

l. make an outline of the information presented in the text.

m. recognize structures used to express:

-denial and affirmation
-agreement and disagreement
-fact, hypothesis and neutrality
-approval, disapproval
-valuation

n. develop critical reading skills (separating fact from opinion , evaluating, making value judgments, etc...).

o. practice reading faster

2. Acquire new vocabulary (sub-technical and general) related to the field of Urbanism.

   a. define the new words by deducing their meaning from context, from word formation (stems, roots, affixation), by using synonyms or antonyms, or by using the dictionary.

   b. use these terms in different contexts.

3. Understand simple oral material related to their field (the teacher in class, recorded passages, guest speakers, films, etc..).

   (The specific objectives provided under the general reading objective will also be used for the material presented orally in class.)

4. Use and produce oral and written discourse in a controlled way.

   a. complete written statements by rephrasing information contained in the text.

   b. do grammatical exercises that ask students to make transformations, substitutions and the like.

   c. fill in the blanks with words or phrases provided in written or oral form.
   d. give short or complete answers (oral or written) to questions provided.
   e. complete diagrams, flow charts, tables, etc.. by providing the missing items (in written or oral form)
   f. write short paragraphs in English related to readings used in class or for homework.
   g. make short oral presentations in class.

5. Acquire new or complementary information in the field of Urbanism.
   a. identify some of the concepts and ideas presented in the materials given to him in class.
   b. discuss some of these ideas and concepts (in written or oral form) in class.

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These objectives have been adapted from the objectives prepared by Prof. Sonia de Rajani. Her references were:

1. Set of Objectives written by Prof. Sofía Vargas and Prof. Sharon Owen de Ross-Jones, Sartenejas, 1977.
2. Gronlund, Norman, Stating Behavioral Objectives for Classroom Instruction, London: Collier-Macmillan, 1970.
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CHAPTER IV

MATERIALS PRODUCTION: A NECESSARY TASK

Dolores N. Curiel

I. Introduction: Why Bother?

Why should we as English teachers bother designing our own materials for English courses aimed at specific scientific and technical fields? Isn't there enough material available commercially to satisfy both our own and our students' needs? Currently, the following textbook series intended for specific fields of study are available:

English for Careers, by Regents Publishing Company
English in Focus, by Oxford University Press
English for Special Purposes, by Evans Brothers
English Study Series, by Oxford University Press
Nucleus: English for Science and Technology, by Longman
Special English Series, by Collier-Macmillian
(Robinson, 1980, pp. 108-9)

This partial list does not include many individual books on specific purpose English which do not form part of a larger series.

To answer the above question I draw upon some comments made at various panel discussions concerning the teaching of English for Specific Purposes (herein referred to as ESP) at the 1981 TESOL Convention. It was commented more than once (I would almost say that it became the themesong of the Specific Purpose English section of the convention) that in the field of ESP everybody was busy re-inventing the wheel. The not-so-indirect implication of this comment is that everyone is busy designing his or her own materials for his or her specific purpose course. John Swales addresses this situation quite directly when he states that "...there has been heavy duplication of much basic work, and certain types of insight have been painfully and independently gained in many an isolated institution." (Swales, 1980, p. 17) He feels that certain institutional pressures to prepare internal materials combined with personal prejudices concerning past production of ESP texts have led to costly, time-consuming duplication of materials which may have already been developed by very competent professional materials designers. Some of the advantages of published materials are that they have a clear beginning, middle and end, and "a greater degree of internal coherence than duplicated courses." (Swales, 1980, p. 18) This, Swales says, is reassuring and gives a sense of direction to those using the materials. What Swales proposes is a compromise solution to the problem of the continual "re-invention of the wheel". It is not new, and is perhaps what many of us are doing, have done, or are getting ready to do--adopt and adapt. That is, adopt an ESP textbook to provide the framework to lead the student through an organized approach to grammar, lexis and function, while adapting the textbook by supplementing it with materials more specifically aimed at the needs of our own students.

In many cases this is a feasible approach to the problem, particularly if the ESP program in question is of the core type--that is, not directly aimed at students in the professional cycle of their studies, but intended for pre-specialization science students. However, the closer one comes to the specific subject area, the less likely one is to find a textbook which even comes close to satisfying the needs of the student in that area of specialization, the reason being that materials which are 'content-based', like some wines, do not travel well. That is to say, the content is tailored to a particular syllabus at a particular educational institution and most likely would not be relevant or appropriate at a similar institution half- way around the world.

If we follow a systems approach, using an analysis of needs to determine the syllabus and thematic content of our ESP courses, then what we end up with is a course "uniquely geared to the purposes, interests, etc...., of the students partaking in it." (Robinson, 1980, p. 41) What materials except those that come out of this process will do the job for us? Again to quote Pauline Robinson, "...the very method of constructing an ESP course may prevent the re-use of any of the material, for courses may be designed around the particular special subject textbook of one class of students...." (p. 41)

Besides the content relevance problem, specific subject textbooks have the problem of being designed for an imaginary student with no nationality and hence, the vocabulary highlighted in the book may not be the most problematic for our students. We, as teachers of English to Spanish-speakers, can and should capitalize on the great number of cognates which exist between the two languages. The format and length of a ready-made textbook can also be inconvenient for a semester or trimester-based academic year. Yet another inconvenience involved in the use of ready-made textbooks is the fact that in certain fields of study the content becomes outdated at a very rapid pace. So, for better student motivation I think we can appreciate the importance of up-to-date reading materials.

For these reasons, then, we, as ESP teachers, are almost forced into the role of materials designers and producers, like it or not.

Within the "procedural model for ESP syllabus design", (Mackay, 1980, p.9) the development of teaching materials is included as the second step in a four-stage process. (The first stage being the "Basic Information Gathering Stage", the third the "Formative Evaluation Stage", and the fourth the "Summative Evaluation Stage".) The ESP section of the Language Department of the Universidad Simón Bolivar has attempted to follow a similar approach with the object of providing uniform criteria for the design and development of ESP courses in the fields of Architecture, Biology, Computer Science, Electronic Engineering, Mathematics and Urban Planing. It should be understood, therefore, that the content of this paper has its roots in the previous stage of "Basic Information Gathering".

2. Rationale for the Use of the Communicative Approach

If we have followed the prescribed steps of the communicative approach to language course design as set out by Munby, Wilkins, and Mackay and Mountford only to return to the fact that a scientific English reading program is necessary for our courses, are we any further ahead than when we started? The answer to this question is definitely affirmative. Looking back on the reading comprehension textbooks of ten to twelve years ago, we can see that the readings were written especially for the textbook (the book, *A Course in Basic Scientific English* by Ewer and La Torre comes to mind) and generally designed to display a particular grammatical structure, such as the simple present tense or the passive voice. The most obvious problem with this type of textbook is that the reading does not bear a great resemblance to the kind of reading which students of science or technology will be confronted with in their studies. For example, how often does an engineering student need to read essays on the scientific attitude written completely in the simple present tense? The grammar is practiced by means of transformation exercises and substitution tables with little or no reference to the meaning of the grammatical pattern in relation to "the way it is (being) used as an utterance." (Wilkins, 1976, p. 10) Indeed, Wilkins' "categories of communicative function", (i.e. definition, deduction, persuasion, exposition, etc.) are practically absent from that previous generation of textbooks. The "synthetic" or "grammatical" syllabus simply cannot do the job that needs to be done in the field of ESP, namely to give the language learner the skills he/she needs in order to achieve the purposes for which the language is being learned. Where limited amounts of time are available, it is unfeasible to attempt the use of a grammar-based syllabus. The "analytic" approach to syllabus design, advocated by Wilkins, has made it possible to focus clearly on what the learner needs to do with language so that the "unavoidable process of limitation or selection can take place." (Wilkins, 1976, p. 69)

In view of the above, we feel that the communicative viewpoint is an appropriate and necessary one for carrying out syllabus design and materials production in our specific circumstances at the U.S.B.

3. Reading: Our Primary Focus

Since it has been determined that the development of reading skills is the primary focus of the ESP courses in question, a few observations concerning the teaching of reading would seem to be in order. A brief review of the literature quickly reveals the fact that no one is quite sure what exactly goes on when one reads or learns to read. Eskey, in his often-quoted article, "A Model Program for Teaching Advanced Reading", states that, "...although we do know a great many interesting things about reading, no one knows exactly what reading is or how anybody learns to do it." (Eskey, 1973, p.171) Kenneth Goodman's description of the reading process as a "psycholinguistic guessing game" is the basis for a complete section of readings in the book, Reading in a Second Language. (Mackay, et.al., 1979) Although the experts admit they do not exactly know what reading is, they do not hesitate to tell us what it involves and how to go about teaching/learning it. Following Goodman's model of the reading process:

> "The good reader is supposed to hunt for clues to the message, which is presented, but not necessarily processed, in a linear manner. The clues are to be found in word recognition, derivational and inflectional morphemes, and knowledge of exposition techniques such as definition, explanation, comparison, and figurative meaning. Higher level skills include recognition of grammatical units such as phrases, clauses, and words which habitually mark them. At this level, students should become aware of the roles of redundancy, and expectancy in reading, as these are signalled by the grammatical and lexical patterning in texts. At the most advanced level,...rhetorical organization and discourse structure should be taught, along with complex syntactic structures."
>
> (Mackay, et.al., 1979, p.3)

Current writing on the teaching of reading emphasizes the development of "critical skills" and advocates "plenty of practice in various kinds of reading." (Eskey, 1973, p. 173) Eskey and others stress the importance of the "contribution of the learner (in the process of) learning to read." (p. 173) This school of thought emphasizes not only the predictive nature of reading but also the knowledge and expectations that the learner brings to the task. It assumes a certain control of the grammar and vocabulary of L_2 and also a certain intellectual capacity. Coady presents L_2 reading as "consisting of a more or less successful interaction among three factors: higher-level conceptual abilities, background knowledge, and process strategies. The result of the interaction is comprehension." (Coady, in Mackay, et.al., 1979, pp.6-7)

In the development of materials for our ESP courses these elements have been acknowledged and attempts have been made to guide the student along from the concrete and literal comprehension of texts to a more cognitive, interactive approach to reading through the use of appropriate reading strategies.

4. Course Design

Reviewing the tentative results of our course design activities, it becomes clear that an attempt has been made to specify what might be called a communicative-functional syllabus.

The term "communicative" may be understood as:

> "inferring what propositions sentences are being used to express and how they interrelate. It involves...the ability to infer what illocutionary acts these propositions are being used to perform and how these combine in a coherent way. In brief, it involves an understanding of the communicative value of linguistic elements in context and this is based on a knowledge of how these elements may serve as clues which can be interpreted by reference to shared conventions of communication."
> (Widdowson, 1978, p. 68)

The term "functional" is included because of the use which has been made of Wilkins' "categories of communicative function (which express) functions or functional meaning (i.e. the social purpose of the utterance.)" (Wilkins, 1976, p. 23) These functions coincide with the rhetorical functions dealt with by Selinker, Todd-Trimble and Trimble in their work on rhetorical categories and EST discourse.(Selinker, et.al. 197) There is perhaps some redundancy in the specification of a syllabus as a communicative-functional one; however, it seems heplful to use Widdowson's ideas on communicative ability which stress the interactive nature of communication together with Wilkins' categories of communicative function which emphasize the role which an utterance performs "in relation to other utterances and as part of the interactive process involving the participants." (Dobson, 1979, p.4)

5. Materials Production

5.1. Text Selection

While all of the ESP courses at the U.S.B. share common general objectives, the choice of materials to carry out those objectives has been decided in three different ways: 1) according to rhetorical function, 2) according to topic or theme, and 3) according to source of text (i.e. textbook, manual, professional journal). These decisions were made in view of the special circumstances of each ESP course. The English for Biology teacher/materials developer, for example, found the use of rhetorical function the most natural way to determine the choice of texts since the subject matter of that area deals so frequently with classification, division, comparison/contrast, definition, and so on. The English for Electronic Engineering teacher/materials developer, on the other hand, found that text source provided a useful division since there are only a limited number of functions which seem to prevail in the field of electronics (e.g. description of process, instructions, and definition) at least at the level at which the students would be reading in the first years of their professional studies. Also, due to the fact that English for Electronic Engineers is a one-trimester course, the text source approach provides an efficient way of surveying the different types of professional literature which students will need to refer to during their studies and later, as professionals. The ESP courses for Architecture, Computer Science and Mathematics have been given a thematic organization in an attempt to provide students with highly motivating topics which have immediate or future relevance to their fields of study. This motivational aspect cannot be overemphasized.

In all cases, 'authentic' texts are used as the basis for materials production. In this context, 'authentic' is used to mean either materials which the students are using in their academic subjects concurrently with their ESP course, or materials similar in content and style to those which they are or will be using in their academic subjects.

The decision to use 'authentic' texts was made for a series of reasons. It must be remembered that our students study a three-trimester cycle of general scientific English in their first year at the university, so the second year courses must necessarily zero in on the more subject-specific materials. Also, the ESP courses are offered only in subject areas where there has been a specific request from the coordinator of the academic area, and in some cases, there has been a request from the coordinator to use certain materials as the basis for the ESP course. Another reason for choosing 'authentic' materials is that an ESP teacher attempting to write his/her own materials might make factual errors which would most certainly be detected by students. Motivation is another point in favor of 'authentic' texts. Knowing that the materials being studied are the same or similar to those which they have to handle in their specialized courses, students feel a stronger motivation to work through them. And, last but not least, the time element involved makes it more convenient and less tedious for us to use 'authentic' texts rather than write our own reading passages. This is especially true if we take into account the pressures of keeping up with teaching while being involved in materials production.

The provisional nature of these second year materials must be mentioned at this point, since the first year program is also in a pilot stage and students studying in the new first year program have not, at the time of writing, reached the second year courses. Ideally, the second year materials should follow and build upon what has been learned in the first year program. However, due to that fact that materials development for both programs is being carried out simultaneously, this is only partially possible. It is not unlikely that extensive revision will take place after our materials have been used with students who have completed the new first year program.

5.2. Non-academic Considerations and Limitations

A variety of non-academic considerations must also be taken into account when discussing materials development. Some courses are one-trimester electives (e.g. English for Computer Science and English for Electronic Engineering) while others are either three-trimester obligatory courses (e.g. English for Architecture, English for Mathematics and English for Urban Planning) or three-trimester electives (e.g. English for Biology) The time factor obviously influences the scope of each course. Another factor, closely related to the choice of appropriate texts, is whether the students are at the beginning, middle or end of their program of studies. In the case of architecture, for example, a great majority of students are studying English for Architecture before having studied any professional subjects other than descriptive geometry and architectural drawing. As a result, the content of texts chosen in the English for Architecture course must necessarily be of a very general nature.

In the case of English for Mathematics, the Mathematics co-ordinator requested that a book dealing with the history of mathematics be used in the English for Mathematics course. This has placed restraints on the teacher/materials developer because she is aware that the language used in the history book is quite different from the language of the mathematics textbooks which the students need to be able to handle. The teacher has achieved a rhetorical balance by utilizing texts from mathematics textbooks, general science magazines and professional journals along with the required reading on the history of mathematics.

5.3. Description of Materials

Rather than attempt a course by course description of materials production, I feel that a global approach might be more revealing in that the similarities and differences can be seen more clearly. Since the main focus of our ESP project has been the systematic approach to the design of ESP courses, it is logical that we evaluate to what extent this is possible and to what degree it has been achieved.

5.3.1. Shared Objectives

As is evident from the preceeding sections of this paper, a common communicative approach is shared by all of the ESP courses under discussion. While each course has its own specific objectives, there is also a set of general objectives shared by each course with reading comprehension being the primary focus for all. (See Owen de Ross-Jones, 1981, for objectives) Another shared aspect is the decision to use 'authentic' texts as the basis for each course. A very important benefit obtained from having had a common communicative framework for the different ESP courses has been well put by Bates:

> "(I)t provided the student and teacher with recognisable language-learning aims and landmarks through the course and ensured that non-scientists concentrated on the language and study needs rather than ending up trying to teach the subject *per se*."
> (Bates in Mackay and Mountford, 1978, p.93)

In summary, we can say that it has been possible to unify criteria in broad general terms. It remains to be seen if this has been possible, or is even recommendable, at the more specific levels of the treatment of text, i.e. structure, vocabulary, rhetorical comprehension, content comprehension, and so on.

5.3.2. Structure

In terms of structure, the general approach has been to deal with structural difficulties within the texts as they arise. That is, if a student requires some help in understanding a difficult grammatical structure it will be explained to him/ her in class. Some courses, specifically those with a duration of three trimesters(i.e. English for Biology, Mathematics and Urban Planning) have incorporated exercises based on grammatical structures in the text into the first trimester program, but in the second and third trimesters they also deal with structures 'on demand'. An example of a grammatical exercise practicing the use of modal verbs frequently found in instructions is the rewriting of a sentence using the modal which is synonomous with the underlined phrase, i.e. "It is necessary that the specimen be alive."---"The specimen must be alive."

5.3.3. Vocabulary

Which vocabulary to teach is also determined by the text at hand. Exercises are developed to encourage guessing at the meaning of unknown words by using contextual suggestion. The use of a monolingual dictionary is also encouraged when the student must determine which of several possible meanings of a word is the appropriate one for the context. Vocabulary exercises have been elaborated in a variety of ways, for example, by giving students the synonym of a word in the text which they must find and underline, or by filling in the blank with an appropriate word from a given list (a modified cloze-type exercise).

In the ESP courses which deal with more technical fields, such as Electronics and Computer Science, there is a greater emphasis on technical vocabulary and in these cases, glossaries are sometimes provided. However, as pointed out in a previous paper (Curiel, 1981), non-technical vocabulary seems to be more problematic to L_2 students and therefore in some courses receives more emphasis. Word formation is also pointed out in several of the courses, the meanings of prefixes and suffixes being illustrated by examples from the text.

5.3.4. Cohesion

Grammatical and rhetorical cohesion are dealt with in most courses. The grammatical cohesion device of anaphora is handled through exercises which ask the student to determine the specific reference of a particular pronoun. Rhetorical cohesion, so important in determining the communicative value of a specific sentence in discourse, has been practiced by having the student fill in the blank with either inter- or intra-sentential connectives from a given list, or else with no help other than the context of one or several sentences.

5.3.5. Rhetorical Functions

As was mentioned above, rhetorical functions form the basis for the syllabus of two ESP courses (English for Biology and English for Urban Planning). However, this does not mean that the other four courses do not deal with them. As with structure, rhetorical functions are pointed out and explained when and where they occur in a text. After students have dealt with a function in several texts, they might then be asked to recognize the function in a subsequent text. The structures and vocabulary generally associated with a function are also highlighted.

5.3.6. Content Comprehension

Content comprehension is an aspect of reading which, evidently, has been dealt with in all courses. In some instances, the teaching unit will have pre-reading questions and require the student to quickly scan the text for the information necessary to answer the questions. Straightforward answers to direct questions ascertain whether or not the student has understood what might be called the 'surface content' of a reading passage. What Coady calls "higher level conceptual abilities" (Coady in Mackay, et.al., 1979, p. 7) are called into play when the student is asked to recognize and understand inferences, judgements, and to distinguish fact from opinion.

Evaluative exercises are part of most course materials. After having gone through the text using a variety of the above-mentioned exercises types, the student is then asked to evaluate the content according to his/her own criteria, comment on its applicability to his/her current interests, etc. Criteria may also be provided by the teacher or suggested by outside sources such as the scientific approach of the particular field of study. This activity is motivating because it allows students to express their own ideas in relation to the topic and it involves them at a higher level than just reporting what was in the text.

5.3.7. Listening Comprehension

Listening comprehension, second in importance after reading comprehension in our list of general objectives, plays an important part in our materials production activities. In all courses, the teacher communicates a large percentage of the time in English. All of the courses utilize audio-visual resourses such as slide programs, with accompanying recorded texts, video-cassette programs such as NOVA and CONNECTIONS or privately prepared programs, and movies available from the various cultural offices attached to the embassies of English-speaking countries. In the English for Mathematics course, the teacher has prepared and given lectures which the students listen to and take notes on. They then must try to re-create the content of the lecture using their notes. The English for Biology course has utilized the resource of English-speaking Biology professors at the university who have given short lectures to the class and answered student's questions concerning the content of the lectures. The English for Computer Science course has used parts of a self-instructional video-cassette program for the teaching of computer science and other programs on related topics. The English for Electronic Engineering course also uses part of a self-instructional training program produced by a computer manufacturing company. The following are several types of exercises based on listening comprehension activities: cloze dictations based on the content of the audio-visual program; matching exercises; the re-ordering of a list of events in chronological order; true-false statements; and multiple choice questions. In general, the activities are designed to avoid an excess of production, i.e. long written answers, and instead concentrate on recognition, i.e. short answers or selecting the correct answer. In all instances these audio-visual resources provide reinforcement for the topics presented in written texts and are also very motivating in stimulating the students to try to understand as much spoken English as possible. The inclusion of audio-visual materials in all of the ESP courses is also important in the long term, catering as it does to the possible future needs of students for understanding spoken English for advanced study in an English-speaking country or for understanding English-speaking visiting lecturers.

6. Methodology

It would be appropriate at this point to discuss how the materials developed are actually dealt with in our courses. This discussion of methodology will be brief since this aspect of the ESP project will be more fully developed once the materials have been evaluated.

This is probably the most flexible aspect of the project, for although our courses are based primarily on a communicative approach, both objectives and teaching styles differ, resulting inevitably in the implementation of varying methodologies from one ESP course to another. Nevertheless, certain broad criteria have been established in relation to the core objectives of the courses, taking into account the theoretical framework within which these courses are developed. These criteria might be stated as (Archibald, 1981):

1. Pragmatism
2. Dynamism
3. Variety

By pragmatism we mean the ability of the course, as reflected in the methodology employed, to meet the actual needs of the student, even if this involves some disregard for traditional taboos in foreign language teaching. An example of this is the use of the students' native language if this seems essential for understanding a given concept or relationship. The use of Spanish in the classroom, principally on the part of the students, is accepted in nearly all of the courses. It may be necessary in the oral mode in order to discuss the ideas presented in a reading, or in the written mode in order to answer a question which involves evaluation and judgement. It is felt that the use of the students' native language is a valid way for them to indicate their comprehension of a text.

The term dynamism refers to the attempt to involve the student actively in the learning process whenever possible; hence, the use of listening and writing skills as motivating strategies and as reinforcement for the main objective of reading comprehension. (Archibald, 1981) An effort is being made to create a 'learner-centered' classroom with a great deal of interaction between the students and the teacher. It has been our experience that students enjoy working in groups on reading comprehension activities in order to exchange ideas and help each other with the interpretation of the text under study. Another source of dynamism has been the use of task-oriented activities on the part of some teachers. This implies some kind of student activity based on or suggested by the text being studied. For example, the students in the English for Architecture course, after having read about different color phenomena, brought into class examples of these phenomena and explained them to the class.

The third criterion, variety, is in a sense a corollary to the first two, since it is derived from the very requirements of a pragmatic and dynamic methodology. As a result, any or all of the following methodological aspects may be utilized during an ESP course:

-the use of audio-visual materials

-printed texts with accompanying exercises (here again, the emphasis is on variety in the topics chosen, and the exercise types)

-group discussions, presentation of prepared topics, projects

-talks given in English by invited experts in the students' field

(Archibald, 1981)

7. Conclusions and Recommendations

Looking back on what has been achieved during the first year of materials production, it is generally felt that the time and effort dedicated to the task have been worthwhile. The ESP courses are more clearly focused and coherent than was generally the case previous to the beginning of the project. But while the teachers feel satisfied with their preliminary results, it is also evident that there is room for improvement. To this end the following suggestions are offered.

It is felt that in order to facilitate reading comprehension, a more systematic approach to the teaching of the linguistic elements is needed. It is thought that perhaps a pedagogical communicative grammar syllabus might be developed to parallel the existing course syllabus. In this area, we depend on the field of applied linguistics to provide more information concerning the characterization of scientific English.

Another area which needs amplification is that of extensive reading. This will be especially true once the students who have completed the new first year program reach the second year ESP program. The expansion of this aspect could bring with it an integration of a variety of meanings at different levels of comprehension within a single text, as well as between two or more texts. Comprehension activities should not stop at the level of analysis, but should tap the students' ability to synthesize and apply information in related but different contexts as the true test of whether something has been fully understood. Also, the learner should be doing something with the language rather than just experiencing it passively, i.e. comprehension rather than mere identification.

It is also felt that there should be more contact between the subject specialist (many of whom could be used as class resources since they speak English) and the ESP teacher/materials developer. This contact is necessary for two principal reasons: 1) to give the professors of specialty subjects the opportunity to assist in the choice of appropriate topics and texts, and 2) to capitalize on the above-mentioned language ability of some specialty subject professors by have them address the ESP classes in English or help in the production of videotapes which could be reused.

Finally, the ESP teachers working on this project consider that it would be useful to have workshop sessions to share ideas and provide stimulation for continued materials production efforts. Moreover, a workshop environment would facilitate the process of obtaining feedback from colleagues, which is vital for course improvement.

While it has been possible to point out a great many similarities in the materials produced for the six ESP courses at the U.S.B., it should not be assumed that the materials used in any one ESP course look exactly like the materials in any other (See Appendix for sample materials). The materials for each course have been produced independently and not in conjunction with each other. There has not been a model unit for all courses to pattern themselves on. The individual teacher/materials developer has had complete freedom to design his/her course in the manner which seemed most appropriate after having taken into consideration all of the necessary academic and non-academic factors. Our commitment as a group working on the systematization of the specific purpose English courses at the U.S.B. has been, and continues to be, the unification of criteria for course design and evaluation. We do not believe that the necessary consequence of this unification must be total standardization. Each academic field has its own personality, so to speak, and the materials developed for each specific purpose English course should reflect the special character of each field and group of learners, while remaining within the boundaries of the common approach and objectives shared by all.

APPENDIX

SAMPLE MATERIALS

SAMPLE MATERIALS

ENGLISH FOR ARCHITECTURE

UNIT III : SPACE IN ARCHITECTURE.

ELEMENTS OF SPACE (Part I)

What is space ? There are two ready answers to this question. One of them is spontaneously plausible. It conceives of space as a self-contained entity, infinite or finite, an empty vehicle ready and having the capacity to be filled with things. Consciously or not, people derive this notion of space from the world as they see it, and unless they are psychologists, artists, or architects, they are unlikely ever to be confronted with the challenge of questioning it. PLato spoke in the Timaeus of space as "the mother and receptacle of all created and visible and in any way sensible things". He thought of it as the "universal nature which receives all bodies -- that must always be called the same ; for while receiving all things she never departs from her own nature and never in any way or at any time assumes a form like that of any of the things which enter into her ; she is the natural recipient of all impressions, and is stirred and informed by them, and appears different from time to time by reason of them." Space was for Plato a nothingness existing as an entity in the outer world, like the objects it could hold. In the absence of such objects, space would still exist, as an empty, boundless container.

Space Created By Things.

Spontaneously, then, space is experienced as the given that precedes the objects in it, as the setting in which everything takes its place. Without paying our respects to this spontaneous and universal manner of looking at the world, we could not hope to understand the nature of architecture as an arrangement of buildings placed within a given, continuous space. Nevertheless, this conception neither reflects the knowledge of modern physics nor describes the way the perception of space comes about psychologically. Physically, space is defined by the extension of material bodies or fields bordering on each other, e.g., a landscape of earth and stones adjoining bodies of water and air. The measurable distances within such a rag rug of different materials are aspects of physical space. Beyond that it is the mutual influences of material things that determine the space between them : distance can be described by the amount of light energy that reaches an object from a light source, or by the strength of the gravitational attraction exerted by one body upon another, or by the time it takes for one thing to travel to the next. Apart from the energy that pervades it, however, space cannot be said to exist physically.

The same is true psychologically for the origin of space perception. Although space, once it is established, is experienced as an always present and self-sufficient given, the experience is generated only through the interrelation of objects. This is the second answer to the question : What is space ? Space perception occurs only in the presence of perceivable things.

The difference between the two conceptions of space has fundamental consequences. The notion of space as a container that would exist even if it were completely empty is reflected in the Newtonian assumption of an absolute base of reference, against which all distances, velocities, or sizes have equally absolute measurements. Geometrically, this corresponds to a system of Cartesian coordinates, to which all locations, sizes, or movements in a three-dimentional space can be related. If, for example, nothing but a single ball-shaped object is given, its spatial position with regard to the framework can be determined by three coordinates indicating the distances from the frame of reference.

This sort of construct makes no sense when we deny the existence of absolute space and instead consider space the creation of existing objects. In this view, no three-dimentional framework exists for the solitary ball suspended in emptiness. There is no up or down, no left or right, neither size nor velocity, and no determinable distance of any kind. Instead there is a single center surrounded quite symmetrically by emptiness in that no direction is distinguishable in any way from any other, and consequently the notion of direction does not come up at all. Space is, in this case, a centrically symmetrical sphere of infinite expanse. It should be noted that the situation I am describing here is not simply physical but experiential,presupposing a consciousness of space that somehow inheres in that single ball-shaped object.

Taken from : The Dynamics of Architectural Form
by Rudolf Arnheim, University of California Pres
1977.

EXERCISES BASED ON "ELEMENTS OF SPACE " (Part I)

I. VOCABULARY

A. VOCABULARY IN CONTEXT

Using the context of the reading and the sentences given, try to guess at the meaning of the underlined word(s).

1. The exam was very long ; trying to finish it in one hour was a real challenge. — — — — — — — — — — — — — — —
2. The professor always reads his lectures. He never departs from his written text. — — — — — — — — — — — — — —
3. Although the professor tried to help me understand, I still don't know how the splitting of the atom comes about . — — — — — — — — — — — — — — — — — —
4. The light was coming from outer space, but the scientist could not determine its source. — — — — — — — — — — — —
5. There were too many people to fit into one hotel room, so we had to ask for adjoining rooms. — — — — — — — — — — — —

B. Synonymous Expressions.

Find and underline the words in the text which have the same meaning as the following words :

1. Recipient (par. 1)
2. Taking into consideration (par.2)
3. Variety (par.3)
4. Shaped like a ball (par.4)
5. In relation to (par.4)
6. In its place (par.5)
7. Arise (par.5)

C. Vocabulary Building

WORD IN TEXT	SUFFIX/PREFIX	MEANING
boundless	-less	without
self-contained (Find another example of "self" in the text.)	-self-	oneself, itself
unlikely	un-	not
nothingness (Find another example of "-ness" in the text)	-ness	noun-forming
measurable	-able	(adjective-forming verb-adjective)

universal	-al	adjective-forming (Noun-adjective)

(Find another example of "-al" in the text)

psychologically	-ly	adverb-forming

(Find another example of the "-ly" in the text)

presupposing	pre-	before

##Note that some meanings are grammatical while others are lexical.

II. SCANNING QUESTIONS

1. Who wrote the Timaeus?
2. What was the subject being considered in this work?
3. How is space experienced spontaneously?
4. How can distance be described physically?
5. What is the second answer to the question, "What is space?"
6. What is the geometrical equivalent to the Newtonian assumption of an absolute base of reference?
7. What does space as a centrically symetrical sphere of infinite expanse presuppose?

III. CONNECTIVES

Fill in the blanks with connectives which convey the same relationships in these sentences as the ideas presented in the text. Use the words in the list below.

unless
although
nevertheless
either...or
even though
however
while
neither...nor
apart from
except for
if

1. ________________they are artists, architects or psychologists, people do not usually challange the concept of space as "an empty vehicle ready and having the capacity to be filled with things."

2. ______________we need to recognize the "spontaneous and universal manner of looking at the world.", this way of thinking does not ________________ reflect a knowledge of modern physics________________describe how the perception of space occurs psychologically.

3. No three-dimensional framework exists______________we think of space as the creatio of existing things.

4. Space cannot be said to exist physically__________________the energy that pervades it.

IV. DISCUSSION QUESTIONS

1. Explain in your own words, the two concepts presented by the author.
2. Which point of view do you sympathize with? Why?
3. Which concept do you think is necessary for the architect to utilize in his work?

UNIT III--"Elements of Space", Part 2

DISCOURSE COMPREHENSION QUESTIONS

Paragraph 1

1. What is the function of the question which begins this paragraph? (line 1)______________________________.

2.How is space referred to metaphorically in this paragraph? Who created the metaphor?______________________________.

3. Are the"two ready answers" found in this paragraph? If your answer is NO, where are the answers to be found?______________.

Paragraph 2

1. In line 1, the word "then" can be replaced by______________.

2. How does the word "then" relate this paragraph to the previous one?______________________________.

3. What effect does the double use of the negative ("Without... we could not...") have on the sentence beginning on line 3?

______________________________.

4. We have already learned that "e.g." means ______________. (line 11)

5. The expression"a rag rug of different materials" is an example of a ____________________(line 13).

Paragraph 3

1. What does the phrase "The same..."(line 1) refer to?______________

2. How is the word "given" used grammatically in line 4?______________

Paragraph 4

1. The first sentence (lines 1-2) mentions "fundamental consequences" resulting from the two different conceptions of space. Are they presented in this paragraph? If so, what are they?_____ ______________________________. If not, where are they presented?______________________.

2. What is the example in line 9 being used to illustrate?

______________________________.

Paragraph 5

1. How does the first line of this paragraph directly relate it to the previous one?______________________________

2. Can the expression "no....or" and "neither....nor" be interchanged in lines 5-7?______________________________

3. The word "consequently" can be replaced by ______________.

SAMPLE MATERIALS

ENGLISH FOR BIOLOGY

DEFINITION

Read the passages below and write a definition of the underlined words, using the information provided in the passage.

a. It has since been shown that fats stimulate the wall of the duodenum to release another hormone, enterogastrone, which inhibits secretion of gastric juices. (Keeton, p. 326)

fats: ______________________________

enterogastrone: ______________________________

b. During the brief stage termed metaphase, the chromosomes are arranged on the equatorial plate of the spindle, and in side view appear to form a line across the middle of the spindle. (Keeton, p. 504).

metaphase: ______________________________

____

c. Each scale of a female cone bears two sporangia on its upper (adaxial) surfaces. Each sporangium is encased in an integument with a small opening, the micropyle, at the end. (Keeton, p.833).

sporangia: ______________________________

the micropyle: ______________________________

Ways of expressing defining characteristics

1. Study the following definitions and underline:

   - the part of each definition that refers to the characteristics.
   - the words that connect the class and the characteristics.

a. The operculum is a bony structure which covers and protects the gills of a fish. (Adamson/Bates, p. 37)

b. The process in which light is the energy source for the synthesis of complex organic compounds is known as photosynthesis. (Pearson, p. 17).

TEXT A: Read the following text and indicate whether the terms are defined by:

- description
- function
- process

The Oral Cavity. The first chamber of the digestive tract is, of course, the oral cavity. Located here are the teeth, which function in the mechanical breakup of food by both biting and chewing. The internal structure of a tooth is shown in Fig. 5.24. Human teeth are of several different types, each adapted to a different function (Fig. 5.25). In front are the chisel-shaped *incisors,* four in the upper jaw and four in the lower, which are used for biting. Then come the more pointed *canine* teeth, one on each side in each jaw, which are specialized for tearing food. Behind each canine are two *premolars* and three *molars* in adults; these have flattened, ridged surfaces, and function in grinding, pounding, and crushing food. A child's first set of teeth does not include all those mentioned here; the first (or milk) teeth are lost as the child gets older, being replaced with the permanent teeth that have been growing in his gums (Fig. 5.25C).

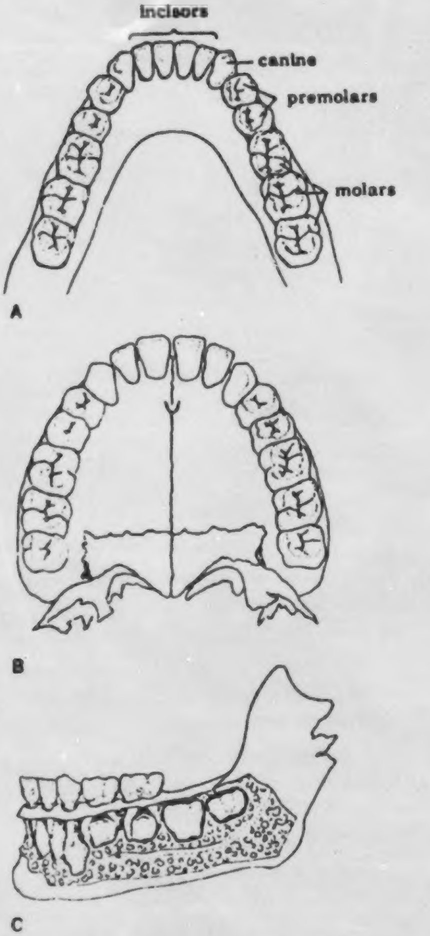
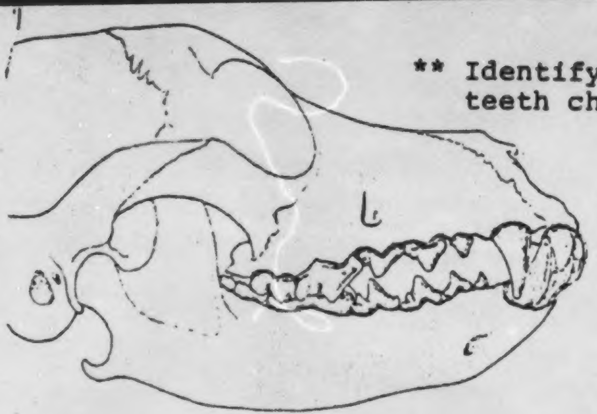


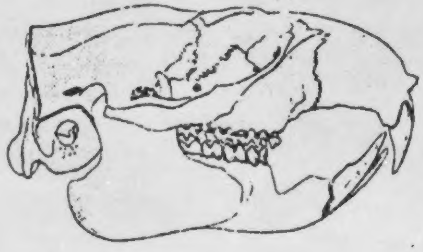
Fig. 5.25. Human teeth. (A) Lower jaw of adult. (B) Upper jaw of adult. (C) Lower jaw of child, showing permanent teeth in gums below milk teeth. [After Frank H. Netter, M.D., *The Ciba Collection of Medical Illustrations,* vol. 3, 1959.]

The teeth of different species of vertebrates are specialized in a variety of ways and may be quite unlike those of man in number, structure, arrangement, and function. For example, the teeth of snakes are very thin and sharp (Fig. 5.26D) and usually curve backward. They function in capturing prey, but not in mechanical breakup; snakes do not chew their food, but swallow it whole. The teeth of carnivorous mammals, such as cats and dogs, are more pointed than those of man (Fig. 5.26A); the canines are long, and the premolars lack flat grinding surfaces, being more adapted to cutting and shearing (often the more posterior molars are lost). On the other hand, such herbivores as cows and horses have very large flat premolars and molars with complex ridges and cusps; the canines are often totally absent in such animals. Notice that sharp pointed teeth poorly adapted for chewing seem to characterize meat eaters like snakes, dogs, and cats, whereas broad flat teeth, well adapted for chewing, seem to characterize vegetarians. How can this difference be explained? Remember that plant cells are enclosed in a cellulose cell wall. Very few animals can digest cellulose; they must therefore break up the cell walls of the plant they eat if the cell contents are to be exposed to the action of digestive enzymes. Animal cells, like those in meat, do not have any such nondigestible armor and can be acted upon directly by digestive enzymes. Therefore chewing is not as essential

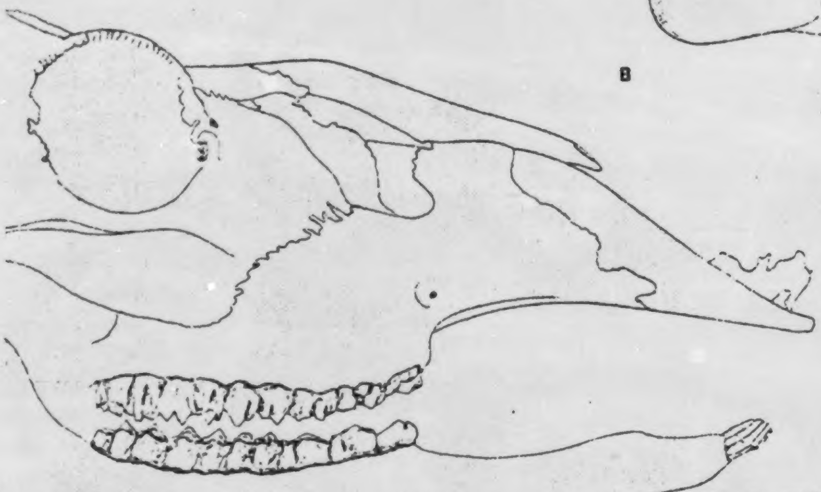
** Identify the animals by looking at the teeth characteristics:



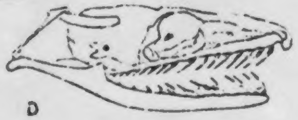
A



B



C



D

for carnivores as for herbivores. You have doubtless seen how dogs gulp down their food, while cows and horses spend much time chewing. But carnivores have other problems. They must capture and kill their prey, and for this, sharp teeth capable of piercing, cutting, and tearing are well adapted. Man, being an omnivore, has teeth that belong, functionally and structurally, somewhere in between the extremes of specialization attained by the teeth of carnivores and herbivores.

There are other functions of the oral cavity besides those associated with the teeth. It is here that food is tasted and smelled, activities of great importance in food selection. And it is here that food is mixed with saliva secreted by several sets of salivary glands. The saliva dissolves some of the food and acts as a lubricant, facilitating passage through the next portions of the digestive tract. The saliva of man also contains a starch-digesting enzyme, which initiates the process of enzymatic hydrolysis.

The muscular tongue manipulates the food during chewing and forms it into a mass, called a bolus, in preparation for swallowing; it then pushes the bolus backward through a cavity called the *pharynx* and into the *esophagus*. (Fig. 5.27; see also Fig. 6.13, p. 215). The pharynx functions also as part of the respiratory passageway; the air and food passages cross here, in fact. Consequently, swallowing involves a complex set of reflexes that close off the opening into the nasal passages and trachea (windpipe), thereby forcing the food to move into the esophagus. As you know, these reflexes occasionally fail to occur in proper sequence and the food enters the wrong passageway, causing you to choke.

(taken from Keeton,pp. 186-87)

1. Match the following words contained in group A with those in group B.

A

___ cellulose
___ canine
___ molars
___ oral cavity
___ snakes

B

pound
bite
difficult to digest
tasting
curving teeth
tear
digestive enzymes

2. Indicate whether the following statements are TRUE or FALSE.

_____ The incisors are used for grinding food.
_____ The teeth of many animals are different to those of man because they are used for different purposes.
_____ Herbivores tend to have sharp teeth.
_____ Because man is omnivore, his teeth are an adaptation of both carnivore and herbivore teeth.
_____ The senses in the oral cavity are used for mixing food.

3. Choose the correct alternative.

i. Milk teeth are

a. used for grinding food.
b. pointed and sharp.
c. replaced by other teeth.
d. lost at the age of 4.

ii. Premolars in carnivorous mammals other than men are

a. used for pounding and grinding.
b. used for cutting and shearing.
c. used for chewing.
d. used for biting.

iii. Chewing is more important for herbivores than for carnivores because

a. it is done by flat premolars which carnivores lack .
b. it is necessary for herbivores to consume a greater quantity of food than carnivores.
c. it acts directly on the food like the digestive enzymes do.

iv. Dogs gulp down their food because

a. being carnivores, they can digest food without chewing.
b. they are always very hungry.
c. being carnivores, they cannot chew at all.
d. they have sharp pointed teeth.

v. Saliva is important for

a. lubrication.
b. processing food.
c. a and b.
d. neither a nor b.

INSTRUCTIONS

A. Instructions in Experiments

You will often find that, even in Laboratory Manuals, instructions are not given like a recipe. They may seem to be a description of a process.

Below are five examples of instructions from manuals and texts. In each example, number the different steps and underline the verbs used to express the orders or recommendations. (Are you understanding the instructions?)

1. MEASUREMENT OF CHLORIDE CONTENT AND SALINITY OF WATER

Titration Procedure

The titration procedure should be carried out at or close to 20°C, since this temperature is assumed in the calculations of chloride content and salinity. For water of low chloride content (fresh water), a sample of about 50.0 ml should be used for the titration. For water approximating normal sea water in salinity, a sample of 10.0 ml should be used. With concentrated brines or hypersaline waters, it is necessary to use a carefully measured sample of small size (1.0 – 2.0 ml) in order that the titration may be accomplished with a reasonable amount of silver nitrate solution. Small samples should be diluted to a total volume of at least 10 ml with distilled water to give a convenient working volume. This dilution will not affect the calculations of chloride content or salinity. The titration sample should be placed in a white porcelain dish, a beaker, or an Erlenmeyer flask placed over a white background, and 2-3 drops of potassium chromate solution added. The sample should then be titrated with 0.1 N silver nitrate. During this titration, the sample should be stirred or swirled vigorously to release free chloride ions trapped in the flocculent silver chloride precipitate. The titration should be terminated when the red silver chromate color first becomes permanent.

(text taken from Cox, p. 171)

2. SOIL TEXTURE ANALYSIS

Preparation of Soil Samples for Analysis

Soil samples should be air-dried in the laboratory for several days prior to the texture analysis. The entire sample should be weighed and then spread out on a flat, newspaper-covered surface. The lumps of soil then should be broken up with a wooden roller. Care should be taken during this procedure that rocks and coarse soil particles are not broken or crushed. The sample should then be passed through a 2-mm (#10) sieve. The rock material retained by the sieve may be weighed and the per cent of the total sample weight consisting of particles greater than 2 mm in diameter determined. This value, along with the total sample weight, may be recorded in Table 32.1. The hydrometer analysis is carried out on the 2-mm soil fraction.

A 20-25-g sample of the 2 mm soil should be weighed to the nearest centigram and oven-dried at 105-115°C for at least 24 hours and the oven-dry weight determined as a percentage of the air-dry weight. The percentages can be recorded in Table 32.1 and used to calculate the oven-dry weights of samples used in the hydrometer analysis

** Compare the sentences in Column I with those in Column II. Note the different meanings given to a sentence by modals and the passive voice.

	I	II
a.	It is possible to breed pandas in captivity.	Pandas can be bred in captivity.
b.	It is possible that the hypothesis is not valid	The hypothesis may not be valid.
c.	It is impossible to breed ground shrews in captivity.	Ground shrews cannot be bred in captivity.
d.	It is permitted to catch some animals in some seasons.	Some animals may be caught in some seasons.
e.	It is not permitted to catch wild birds when they are nesting.	Wild birds may (or must) not be caught while nesting.
f.	It is essential to follow every step in an experiment.	Every step must be followed in an experiment.
g.	It is not essential to take notes on all new material.	Notes need not to be taken on all new material.
h.	It is advisable to take care in chemical experiments.	In chemical experiments care should (or ought to) be taken.

EXERCISE: Rewrite the following sentences using one of the verbs given in parentheses instead of the expression underlined. Make any other changes in the sentence that are necessary.

1. It is necessary that the specimen be alive. (must, can, need)

2. It is advisable that acid be kept away from the skin. (may, should, can)

3. If a ground shrew is not fed every two or three hours, it is certain that it will die. (may, maight, will)

4. It is possible to improve crops by cloning. (may, can, will)

5. Microscopes are precision-made instruments, and it is therefore necessary to treat them very carefully (can, should, need)

6. It is recommended that you read"Scientific American". (may, should, mustn't)

Read the following passage:

DARWIN'S EXPERIMENTS ON PHOTOTROPISM

One of the first to investigate the phototropism of plants was the incredibly versatile Charles Darwin. He, like many who followed him, performed his experiments on the hollow cylindrical sheath that encloses the first leaves of seedlings of grasses and their relatives. This sheath, called the ***coleoptile***, grows principally by cell elongation, and it exhibits a very strong positive phototropic response. Darwin and his son Francis showed that if the tip of the coleoptile was covered by a tiny black cap, it failed to bend toward light coming to it from one side, while control coleoptiles with their tips exposed or covered with transparent caps bent, as expected, toward the light (Fig. 9.1). A black tube placed over the base of the coleoptile, but not covering the tip, failed to prevent bending. It seemed to be the tip of the coleoptile, therefore, that played the key role in the phototropic response. This was confirmed by experiments in which the Darwins cut off the tip and found that the coleoptile failed to bend, even though control coleoptiles damaged in other ways, but with their tips intact, bent normally. Clearly, it was the absence of the tip and not a reaction to wounding that blocked the phototropic response.

After experiments such as these, which showed, in the Darwins' own words that "the exclusion of light from the upper part of the cotyledons [i.e. coleoptiles] . . . prevents the lower part, though fully exposed to a lateral light, from becoming curved," they came to the conclusion, in 1880, that it is the tip of the coleoptile that detects the light and that "some influence is transmitted from the upper to the lower part, causing the latter to bend."

(Keeton, p. 299-300)

performed
  a. acted
  b. made
  c. took

failed
  a. did not
  b. could not
  c. tried to

block
  a. prevent
  b. cube
  c. building unit

phototropism
  a. use of film
  b. orientation to light.
  c. aversion to light.

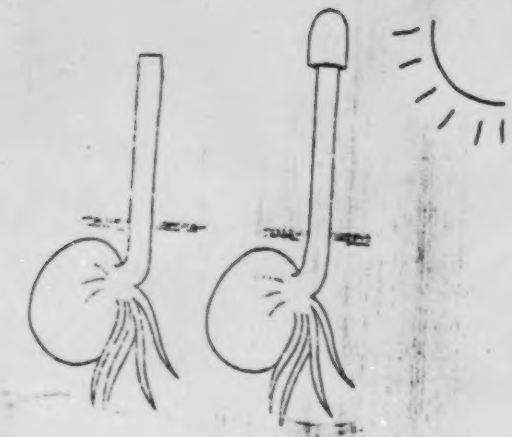
enclose
  a. cover
  b. break
  c. kill

hollow
  a. complete
  b. colored
  c. empty

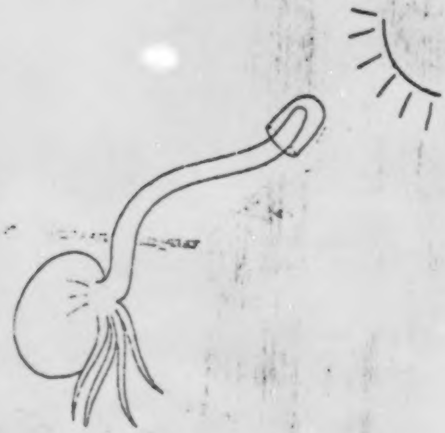
key
  a. for locking doors
  b. legend
  c. main

Now, look at the diagrams on the next page. For each diagram give the instructions for the corresponding experiment made by Darwin.

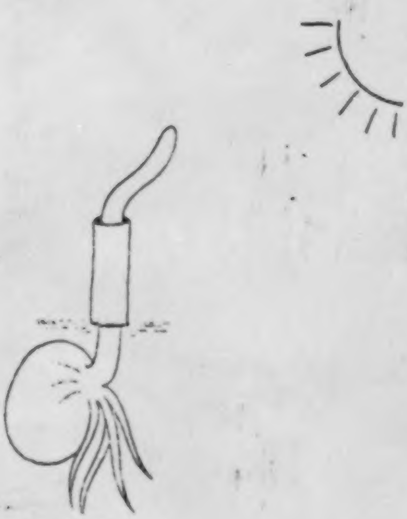
1.



2.



3.



CLASSIFICATION

i. underline the words used to express classification or division.
ii. draw tree diagrams using the information in the text.

1. Although there is considerable variation in the shapes of epithelial cells, it is customary to group them into three categories: squamous, cuboidal and columnar.

2. Epithelial tissue may only be one cell thick, in which case it is called simple epithelium, or it may be two or more cells thick and it is then known as stratified epithelium.

3. It is also customary to group thallophyte divisions into two categories on the basis of the presence or absence of chlorophyll. Thus the photosynthetic thallophytes are called algae, and the non-photosynthetic thallophytes are called fungi.

4. The division Eumycophyta (true fungi) is customarily divided into three classes- Phycomycetes, Ascomycetes and Basidiomycetes- each of which is given full divisional status in some classifications. Most of the characteristics that distinguish these groups are related to their sexual reproduction.

5. The cells of muscle have greater capacity for contraction than most other cells, although all protoplasm probably possesses this capacity to some extent. Muscles are responsible for most movement in higher animals. The individual muscle cells are usually elongate and are bound together into sheets or bundles by connective tissue. Three principal types of muscle tissue are recognized in vertebrates: skeletal or striated muscle, which is responsible for most voluntary movement; smooth muscle, which is involved in most involuntary movements

Abilities or Capacities

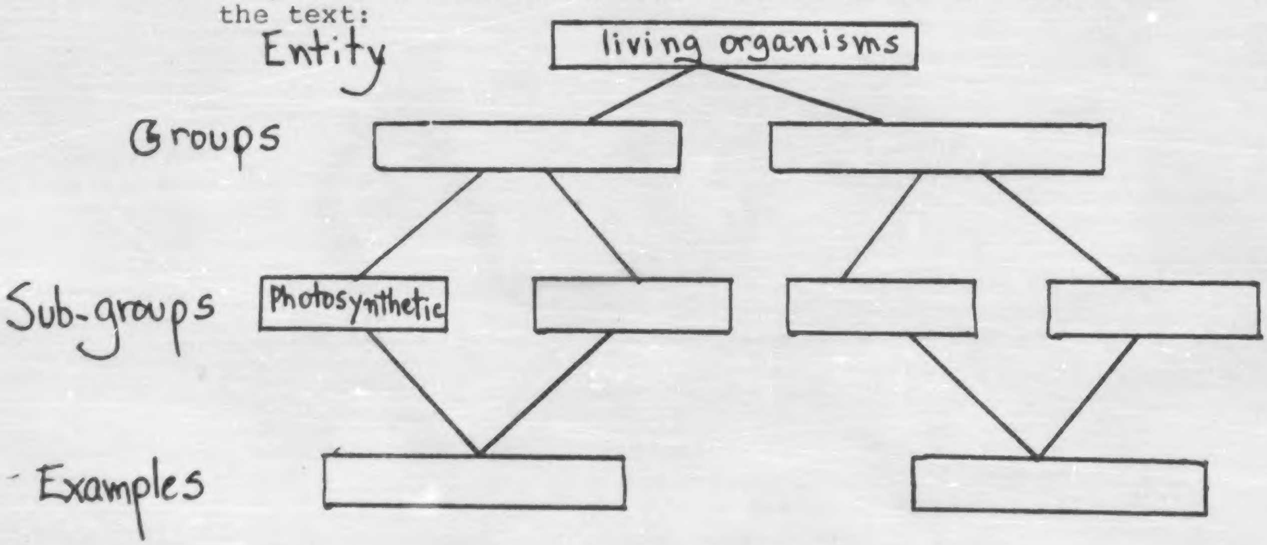
1. Read the text below and complete the following activities:

Organisms can be divided into two classes on the basis of their methods of nutrition. Fully autotrophic ones can subsist in an exclusively inorganic environment because they can manufacture their own organic compounds from inorganic raw materials taken from the surrounding media. The molecules of these raw materials are small enough and soluble enough to pass through cell membranes. As a result, autotrophic organisms do not need to pretreat, or digest their nutrients before taking them into their cells. As you would guess, most autotrophs are photosynthetic, although a few are chemosynthetic. The green plants are by far the most important of the earth's autotrophic organisms.

Heterotrophic organisms (most animals and all those plants such as fungi, that lack chlorophyll) are incapable of manufacturing their own complex organic compounds from simple inorganic nutrients. Hence, they must obtain prefabricated organic molecules from the environment. Many of the organic molecules found in nature are too large and not sufficiently soluble to be absorbed unaltered through cell membranes, and they must first be digested. Among the heterotrophs we distinguish between "solid-feeders" or phagotrophs and "liquid-feeders", or osmotrophs. Whereas phagotrophic organisms take in solid and often living food, osmotrophic ones absorb or suck up liquid food. This is usually from dead and rotting organisms.

(adapted from Keeton, pp. 153-54 and Pearson, p. 13).

a. Complete the following tree diagram by referring back to the text:



b. Choose the best alternative:

1. Most plants are autotrophic because they

   a. absorb liquid food
   b. possess chlorophyll
   c. predigest their nutrients
   d. have prefabricated molecules
   e. are chemosynthetic

2. Heterotrophic organisms must

   a. absorb inorganic compounds
   b. digest organic molecules
   c. taken in solid and living food
   d. feed on rotting organisms
   e. take in liquids

3. In line 9, THEM refers to

   a. cell membranes
   b. autotrophic organisms
   c. nutrients
   d. digestion
   e. autorophs

4. A heterotrophic phagotroph would possibly feed on

   a. a rabbit b. plankton c. blood d. decomposed material
   e. liquids

5. In line 16, HENCE introduces

   a. a consequence or result b. a new ideas c. an exception
   d. a contrast e. an expression of doubt

6. The criterion needed for classifying is

   a. the reaction to the environment
   b. the pretreatment of foods
   c. ways of feeding
   d. photosynthesis
   e. lack of chlorophyll

7. The number of sub-classification in the article is

   a. one b. two c. three d. four e. five

8. In line 7, AS A RESULT introduces

   a. another example b. an exception c. a logical conclusion
   d. a contrasting idea e. more autotrophic organisms

9. A heterotrophic osmotroph

   a. can produce organic compounds
   b. can absorb unaltered organic molecules
   c. can feed on liquids
   d. feeds on solid inorganic nutrients
   e. feeds on living food

10. In line 22, WHEREAS indicates

    a. similaritiy b. a conclusion c. contrast d. result

11. In line 24, THIS refers to: ______________________________

c. Fill in the blanks with one of the words listed below which best completes the meaning of the text. Use each word only once.

Organisms can be ______________ into two __________ on the basis of their ___________ of nutrition. Autotrophic organisms do not need to redigest their __________ before taking them into their cells ______________ most autotrophs are photosynthetic. ________ heterotrophic ___________ are incapable of manufacturing their own complex organic compounds. _____________, they must ________ prefabricated organic molecules from the ______________.

includes
nutrients
divided
known
examples

on the other hand
possess
organisms
classes
because

resemble
environment
methods
therefore
obtain

SAMPLE MATERIALS

ENGLISH FOR ELECTRONIC ENGINEERING

USING THE DICTIONARY EFFICIENTLY

Answer the questions below using the dictionary page provided. (Webster's New World Dictionary ; The World Publishing Company ; 1962, p. 467).

_ T/F - Like economics, "electrodynamics" , electronics" and "electrostatics" are written as plural but are considered singular.

_ T/F - "Electrostatics" and "electrokinetics" are directly opposed sciences.

_ Which of the six definitions of "electrograph" decribes the satellite photos you see periodically on the television news ? #______

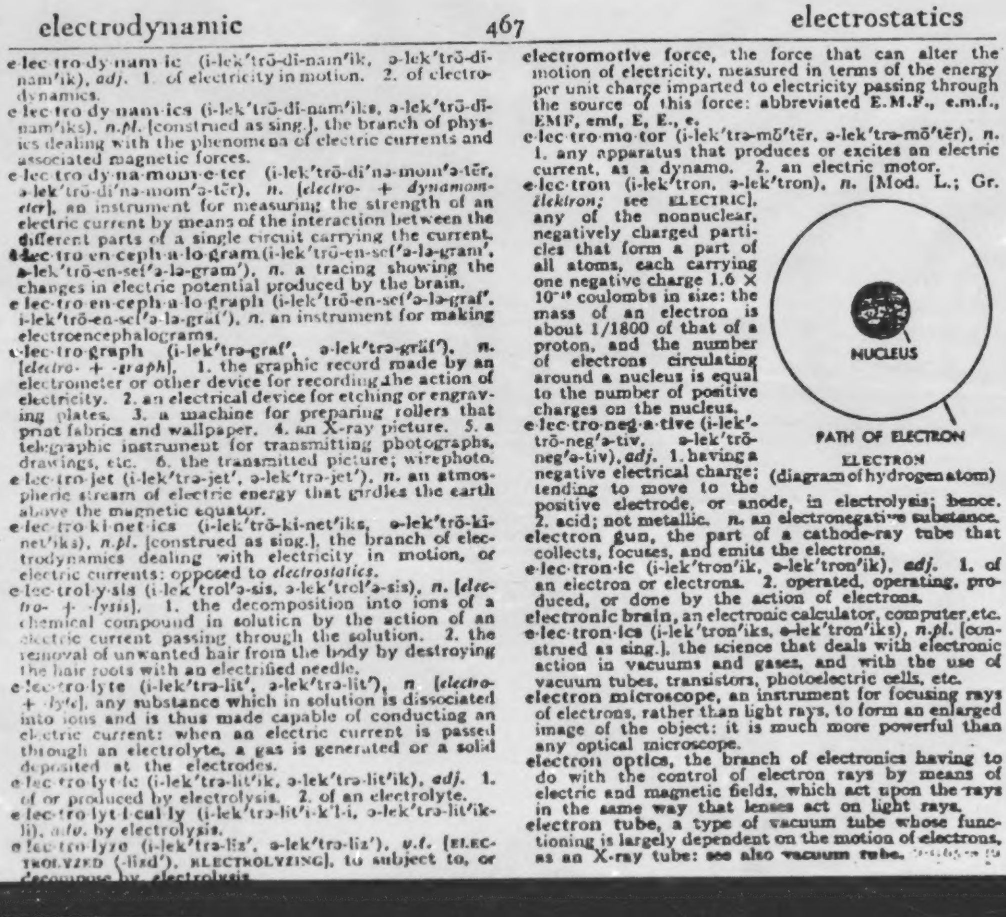
_ Using the pronunciation code at the bottom of the dictionary page, decide whether the syllable dy of the word "electrodynamic" is pronounced like the word is or the word bite. ____________

_ T/F- "Electronegative" is the only word on this page that has more than one function.(i.e. noun, adjective...etc...)

_ The main stress of the word "electrolytically" falls on which syllable ? ______

_ T/F - This dictionary gives the spelling of the past participle and gerund forms of the verb "electrolyze".

_ For more information about the "electron tube" you would look under __________ __________.



electrodynamic 467 electrostatics

e·lec·tro·dy·nam·ic (i-lek'trō-di-nam'ik, ə-lek'trō-di-nam'ik), *adj.* 1. of electricity in motion. 2. of electrodynamics.

e·lec·tro·dy·nam·ics (i-lek'trō-di-nam'iks, ə-lek'trō-di-nam'iks), *n.pl.* [construed as sing.], the branch of physics dealing with the phenomena of electric currents and associated magnetic forces.

e·lec·tro·dy·na·mom·e·ter (i-lek'trō-di'nə-mom'ə-tēr, ə-lek'trō-di'nə-mom'ə-tēr), *n.* [*electro-* + *dynamometer*], an instrument for measuring the strength of an electric current by means of the interaction between the different parts of a single circuit carrying the current.

e·lec·tro·en·ceph·a·lo·gram (i-lek'trō-en-sef'ə-lə-gram', ə-lek'trō-en-sef'ə-lə-gram'), *n.* a tracing showing the changes in electric potential produced by the brain.

e·lec·tro·en·ceph·a·lo·graph (i-lek'trō-en-sef'ə-lə-graf', i-lek'trō-en-sef'ə-lə-gräf'), *n.* an instrument for making electroencephalograms.

e·lec·tro·graph (i-lek'trə-graf', ə-lek'trə-gräf'), *n.* [*electro-* + *-graph*], 1. the graphic record made by an electrometer or other device for recording the action of electricity. 2. an electrical device for etching or engraving plates. 3. a machine for preparing rollers that print fabrics and wallpaper. 4. an X-ray picture. 5. a telegraphic instrument for transmitting photographs, drawings, etc. 6. the transmitted picture; wirephoto.

e·lec·tro·jet (i-lek'trə-jet', ə-lek'trə-jet'), *n.* an atmospheric stream of electric energy that girdles the earth above the magnetic equator.

e·lec·tro·ki·net·ics (i-lek'trō-ki-net'iks, ə-lek'trō-ki-net'iks), *n.pl.* [construed as sing.], the branch of electrodynamics dealing with electricity in motion, or electric currents: opposed to *electrostatics.*

e·lec·trol·y·sis (i-lek'trol'ə-sis, ə-lek'trol'ə-sis), *n.* [*electro-* + *-lysis*], 1. the decomposition into ions of a chemical compound in solution by the action of an electric current passing through the solution. 2. the removal of unwanted hair from the body by destroying the hair roots with an electrified needle.

e·lec·tro·lyte (i-lek'trə-lit', ə-lek'trə-lit'), *n.* [*electro-* + *-lyte*], any substance which in solution is dissociated into ions and is thus made capable of conducting an electric current: when an electric current is passed through an electrolyte, a gas is generated or a solid deposited at the electrodes.

e·lec·tro·lyt·ic (i-lek'trə-lit'ik, ə-lek'trə-lit'ik), *adj.* 1. of or produced by electrolysis. 2. of an electrolyte.

e·lec·tro·lyt·i·cal·ly (i-lek'trə-lit'i-k'l-i, ə-lek'trə-lit'ik-li), *adv.* by electrolysis.

e·lec·tro·lyze (i-lek'trə-liz', ə-lek'trə-liz'), *v.t.* [ELECTROLYZED (-lizd'), ELECTROLYZING], to subject to, or decompose by electrolysis.

electromotive force, the force that can alter the motion of electricity, measured in terms of the energy per unit charge imparted to electricity passing through the source of this force: abbreviated **E.M.F., e.m.f., EMF, emf, E, E., e.**

e·lec·tro·mo·tor (i-lek'trə-mō'tēr, ə-lek'trə-mō'tēr), *n.* 1. any apparatus that produces or excites an electric current, as a dynamo. 2. an electric motor.

e·lec·tron (i-lek'tron, ə-lek'tron), *n.* [Mod. L.; Gr. *ēlektron;* see ELECTRIC], any of the nonnuclear, negatively charged particles that form a part of all atoms, each carrying one negative charge 1.6 × 10^{-19} coulombs in size: the mass of an electron is about 1/1800 of that of a proton, and the number of electrons circulating around a nucleus is equal to the number of positive charges on the nucleus.

NUCLEUS

PATH OF ELECTRON

ELECTRON
(diagram of hydrogen atom)

e·lec·tro·neg·a·tive (i-lek'trō-neg'ə-tiv, ə-lek'trō-neg'ə-tiv), *adj.* 1. having a negative electrical charge; tending to move to the positive electrode, or anode, in electrolysis; hence, 2. acid; not metallic. *n.* an electronegative substance.

electron gun, the part of a cathode-ray tube that collects, focuses, and emits the electrons.

e·lec·tron·ic (i-lek'tron'ik, ə-lek'tron'ik), *adj.* 1. of an electron or electrons. 2. operated, operating, produced, or done by the action of electrons.

electronic brain, an electronic calculator, computer, etc.

e·lec·tron·ics (i-lek'tron'iks, ə-lek'tron'iks), *n.pl.* [construed as sing.], the science that deals with electronic action in vacuums and gases, and with the use of vacuum tubes, transistors, photoelectric cells, etc.

electron microscope, an instrument for focusing rays of electrons, rather than light rays, to form an enlarged image of the object: it is much more powerful than any optical microscope.

electron optics, the branch of electronics having to do with the control of electron rays by means of electric and magnetic fields, which act upon the rays in the same way that lenses act on light rays.

electron tube, a type of vacuum tube whose functioning is largely dependent on the motion of electrons, as an X-ray tube: see also vacuum tube.

Electronic Circuit Diagrams

For some electronic equipment, components could be shown in outline, with connections, in a scale drawing just as in the apparatus.

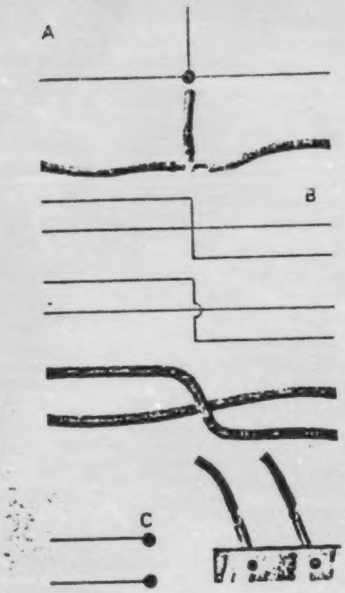
But it is usually better to have a circuit diagram where simple symbols represent various components. Symbols are often simplified representations of the components. By comparing components and their symbols, you will become familiar with them.

Lines represent wires. These may be joined as in Figure 37a. They may cross without contact [37b]. Dots [37c] show connecting points such as sockets, which could be for plugs connected to a loudspeaker, or could be used for some other purpose.

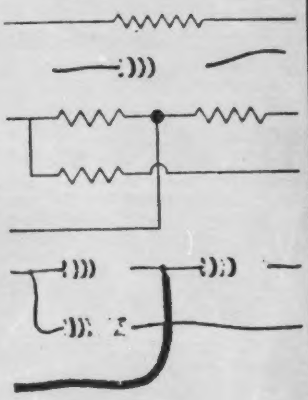
A fixed resistor symbol is shown in Figure 38, together with three resistors in a small part of a circuit. In Figures 39a and 39b is shown a variable resistor. If connections are taken to X and Y, moving the sliding contact (arrow) to the right increases the resistance actually in circuit.

The resistance element may be wire for low values, but is carbon for high values. The track can be in a semicircle, and rotating a spindle moves the contact along the track [39c]. Figure 39d is a typical component.

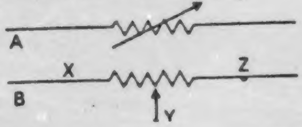
B, C and D are potentiometers. If a potential – such as an audio signal voltage – is taken to X and Z, any required level can be tapped off by moving slider Y. This happens with an audio volume control.



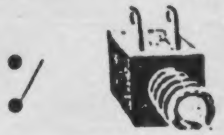
37 How connections are shown



38 Resistors



39 Variable resistors and potentiometers



40 How switches are shown

_What does the word they (page 22. line 10) refer to ?

____

_What is an audio volume control?

____

_ Is it preferable to use scale drawings or symbols to represent components? Why?

____

____

_ Describe the symbol used to represent fixed resistors.

____

_ T/F

Dots always represent sockets ( )

The resistance element for low values cannot be carbon ( )

Atwater, H. A.,

Introduction to Microwave Theory (Tokyo: Kogakusha Co., Ltd.), 1962.

CHAPTER 9

Millimeter Waves

The domain occupied by the microwave frequencies in the electromagnetic spectrum is of arbitrary extent, between approximately 10^9 and 10^{12} cps. This frequency interval thus adjoins the infrared band, which is usually considered to have a low-frequency limit of 10^{12} cps (Fig. 9.1). Considerable practical difficulty is met, however, in the effort to generate and transmit coherent radiation in the frequency decade from 10^{11} to 10^{12} cps. When equipment and techniques successful at free-space wavelengths of the order of 1 cm are scaled down for use in this range, the components become inconveniently minute in size and circuit and transmission losses become excessively high. For example, type RG-139/U waveguide, used for the frequency range 220 to 325 kmc, has inside dimensions of 0.034 by 0.017 in. and has attenuation of 5.12 to 3.48 db/ft in the dominant mode, from the lowest to the highest frequency in this range. This may be contrasted with attenuation of approximately 0.05 db/ft at 10 kmc in standard *X*-band guide (RG-52/U), having inside dimensions of 0.9 by 0.4 in.

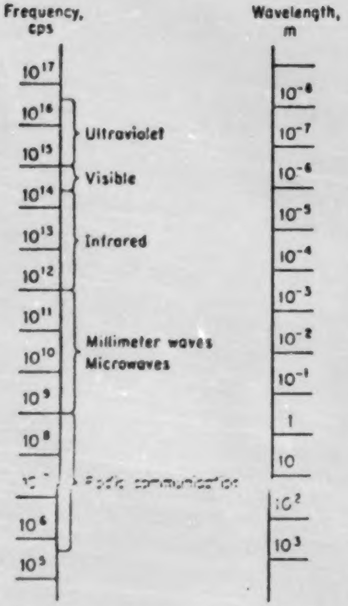


FIG. 9.1. Electromagnetic spectrum.

The millimeter-wave band difficulties of high attenuation and small component sizes are compounded by the fact that it has been found essentially impossible to generate appreciable amounts of fundamental-frequency energy above 10^{11} cps by means of small versions of klystrons, magnetrons, or traveling-wave tubes, such as are used at frequencies one-tenth as great. Obstacles preventing the use of these sources are the difficulty of achieving the small dimensions required for the resonant structures, which must be of the order of magnitude of a wavelength in size, and the problem of prevention of thermal damage due to dissipated energy. A typical reflex klystron oscillator produced for operation at 70 kmc has a resonator 1.6 mm in diameter and distance from electron gun to resonator of 0.3 mm, with other tube dimensions proportionally small. The beam voltage and current are 2,500 volts and 15 ma, and output power is 0.1 to 0.2 watt.† A helix-type traveling-wave tube reported by Christensen and Watkins for operation at 50 to 60 kmc has a helix 1 in. in length, the operating temperature of which is 1300°C in continuous operation.‡

Millimeter-wave components such as those mentioned here are representative of the effort to extend established technical procedures to frequencies above 10^{11} cps. The outcome of this effort has indicated that this extension is not possible with the use of former materials and methods. Radiation of submillimeter wavelength has many applications in the study of molecular structure, the properties of solids and ionized gases, and in extraterrestrial communication. Considerable attention has therefore been given to special methods of dealing with this radiation.

9.1. Millimeter Waveguides

TE_{01}-mode Circular Guide. The frequency dependence of the attenuation of various modes of propagation in hollow waveguides (cf. Sec. 3.10) is shown in Fig. 9.2. All of the hollow-guide modes show rising attenuation in the high-frequency limit, with the exception of the TE_{01} mode in circular waveguide. In this mode the attenuation decreases continuously with frequency. In practice, however, in order to obtain the low attenuation of the TE_{01} circular mode it is necessary to employ waveguide of sufficiently large diameter. Typical data for circular copper guides operating in the TE_{01} mode, in the range 52.6 to 57.6 kmc, is§

Inside diameter, in.	Measured attenuation, db/ft	Calculated attenuation, db/ft
$\frac{7}{16}$	0.0433	0.0370
[illegible]	0.0047	0.00365

---

† N. V. Philips Gloeilampenfabrieken, Type DX151, 1959.

‡ W. V. Christensen and D. A. Watkins, *Proc. IRE*, vol. 43, p. 93, 1955.

§ A. P. King, *Bell System Tech. J.*, vol. 35, p. 1115, 1956.

INTRODUCTION TO MICROWAVE THEORY.-

_ T/F- After reading the first paragraph of this article, we can deduce that it is difficult to determine exactly the frequency of very small waves.

If you answered T, underline the phrases in the first paragraph that justify your answer.

If you answered F, rewrite the above statement so that it reads true.

____

____.

_ Synonyms for "thus" in the second sentence are : _______________ and ________ ______________________________.

_ The last two sentences of the first paragraph serve to ______________________ two different waveguides.

_ T/F - Frequencies that are one tenth as great as those above 10" cps. are able to be generated in small klystrons, magnetrons and travelling waves tubes.

If you answered T, underline the phrases that justify your answer.

If you answered F, change the sentence to read true.

____

____.

_ "These sources " (top of page 221) refers to ______________________________ ____.

_ The last two sentences (first paragraph, p 221) describe two different apparatus. What function do these descriptions serve in the paragraph ? To ______________ ____.

New Scientist 26 April 1979

Technology

Europe must switch on to electric vehicles

The EEC should aim to establish "realistic" populations of electric vehicles within its member countries, in view of the "extreme uncertainties over future supplies of transport fuel, particularly after the year 2000". This is the conclusion from a report* on research and development for advanced batteries from an Anglo-Danish study funded by the EEC, the Science Research Council, the Department of Industry and the Danish government.

The targets should be for at least 5 per cent of cars and light vans to have electric propulsion by 2000, and 15 per cent by 2025. One obstacle seen by the report's authors—Johannes Jensen from Odense University in Denmark, and Peter McGeehin and Ronald Dell of the UK's Atomic Energy Research Establishment—is the "particularly difficult task" of developing suitable advanced batteries. Another is that regulations discriminating in favour of electric vehicles (EVs) will be needed to attract private car buyers.

Among the advantages of EVs are that the sources of fuel for transport are increased to include nuclear power and coal. And the need for anti-pollution measures, which will probably be energy-intensive, is reduced. More electric vehicles would also spread the load on electricity supply networks. Coupled with combined heat and power (CHP) schemes, this would raise the overall energy efficiency of the EV well above the 10-20 per cent of today's vehicles with internal combustion engines.

The report says that EEC energy conservation measures should include the development of an advanced traction battery as a priority. The EEC should support both specific battery developments and basic research into new concepts and materials, and should start a study into industrial and social implications of electric vehicles.

Topics to be covered would include the need for re-charging facilities, battery exchange systems, and how to increase the production capacity of EV and battery makers. The study would also help decide who would use EVs ("second car" owners for instance) and how to attract people to buy them through lower road fund taxes and favourable insurance rates, for example.

The report also considers the potential of secondary batteries for "load levelling" on the electricity supply network. Batteries would act as energy stores. They would be charged up at times of low electricity demand and supply the network when demand was greatest. But the prospects for batteries in this role are not as good in Europe as they are in the US. Europe has a considerable amount of hydroelectric power, and potential for pumped storage schemes, both of which are methods of levelling electricity load.

The authors state that in Europe, EVs are more efficient in energy terms than vehicles powered by internal combustion engines. The difference is only about 5 per cent with present day batteries and less when the electric vehicle is fully loaded. But the researchers believe that higher energy density batteries will swing the argument towards the EV. More important, in conjunction with CHP systems, the battery-operated electric motor's intrinsic efficiency of 70 per cent would make EVs considerably more efficient in energy terms. "By supplying electricity from CHP stations, part of the waste energy inevitably associated with the transport sector is effectively transferred back to the power station, where it can be put to use in district heating," the authors say. ☐

---

* *Electric Batteries for Energy Storage and Conservation – an Application Study*, Odense University Press, Denmark

I. For each of the following words give an English word that means the opposite . (4 points)

1. to raise (L.3 ; c.2) ________________
2. to reduce (L.4;c.2) ________________
3. above (L.9 ; c.2) ________________
4. low (L. last line ; c.2) ________________

II. Comprehension Questions : (11 points)

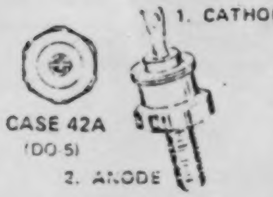
1. It is important to create more electric vehicles because ________________

2. One problem that has to be overcome in order to reach a 5% to 15% population of e.v. is the ________________ of appropriate batteries.

3. Apart from the usual sources of fuel used by cars, e.v.'s can also use

a. ________________

1N3208 thru 1N3212 (SILICON)



Medium-current silicon rectifiers. Cathode connected to case, but reverse polarity (anode-to-case connection) also available by adding suffix "R" to type number, e.g. 1N3208R.

a) These rectifiers are made out of ________ and let ________ current through.

b) Does the case come with the cathode ? ________

c) If you would like a 1N3211 rectifier but with the anode connected to the case, what would be the ordering number?

____________ ______

SAMPLE MATERIALS

ENGLISH FOR MATHEMATICS

OPEN DISCUSSIONS: Some examples of topics discussed:

- What makes scientific language different from normal common language?
- What is a metalanguage?
- Are connotations present in Mathematical language?
- How about synonyms?

Methodology: The question to be discussed is tossed at the class. After all students have had an opportunity of participating in the discussion, conclusions are written on the board. Out of the conclusions, the class constructs the statement of a definition, or a final conclusion is found.

As an exercise, two short texts were analyzed in the following class, to decide which of the two was common language and which mathematical language.

VOCABULARY :

A list of words denoting numbers and symbols in English was discussed. Examples were read. Then the students solved the following exercises:

a) Write down the numbers dictated by the teacher.
54; 39; 25; 17; 81; 111; 578,032; 1/2; 1/4; 2/3; 7/8; 3.06.

b) Read aloud the following formulae:

$$\frac{(x - 11)^2}{1} + \frac{y^2}{9} = 1$$

$$x^2 - 4(y + 6)^2 = 9 \quad \text{for } - 4 = x = 4$$

$$362 \div 15 = 24.13333$$

$$\sqrt[5]{32} = 2$$

c) In the following terms, identify please the factors, the coefficient of each factor, the numerical coefficient:

$$32\ b\ x^2$$

$$4\ a$$

$$\frac{32}{5}\ c\ y^3$$

TEXT ANALYSIS:

a) Paragraphs like the ones shown below were analyzed, first, syntagmatically (each one) and then paradigmatically (each element). After analysis and comparisons were made, by the whole group, certain grammatical aspects had to be covered, like compound nouns and verb tenses. Paradigms were stretched beyond the content of the given paragraphs.

"Addition is the means by which two or more numbers are combined and expressed as a single quantity called a sum or total."

"Subtraction is the process of finding the difference between numbers. Unless otherwise stated, the minus (-) sign is used to indicate subtraction."

"The product of an expression of two or more terms by a single factor is equal to the sum of the products of each term of the expression by the single factor."

b) The following text was dealt with (this of course is only a short sample text) first from the content point of view to make sure that the general idea was understood. This was done with the help of questions:

Were the contents of the Almagest originally from Ptolemy?

How were theorems expressed in the Almagest?

What was the astrolabe?

After the content is clear, regarding general ideas, the vocabulary was discussed to clear up any possible misinterpretations.

A third step was to analyze the language used in the text from the functional and communicational points of view.

"One of the greatest documents of this second Alexandrian period was Ptolemy's Great Collection, better known under the Arabicized title of Almagest (c.A.D. 150). The Almagest was an astronomical opus of supreme mastership and originality, even though many of the ideas may have come from Hipparchus or Kidinnu and other Babylonian astronomers. Also, it contained a trigonometry, with a table of chords belonging to different angles ascending by halves of an angle, equivalent to a sine table according to the formula: chord $= 2R \sin /2$, where $R = 60$. Ptolemy found for the chord of 1 the value (1, 2, 50), $= \frac{1}{60} + \frac{2}{60^2} + \frac{50}{60^3} = .017453$; for the value (3, 8, 30) = $\frac{377}{120} = 3.14166$. We find in the Almagest the formula for the sine and cosine of the sum and difference of two angles, together with a beginning of spherical trigonometry. The theorems were expressed in geometrical form - our present trigonometrical notation dates only from Euler in the eighteenth century. We also find in this book "Ptolemy's theorem" for a quadrilateral inscr inscribed in a circle. In Ptolemy's Planisphaerium we find a discussion of stereographic projection; in his Geographia the position of places on earth is determined by latitude and longitude, which are ancient examples of coordinates on the sphere. Stereographic projection underlies the construction of the astrolabe, an instrument used for the determination of position on earth, already known in antiquity and widely used until the introduction of the octant, later sextant, in the eighteenth century."

The analysis of this text was also led by questions, which the students had to answer. Example of some questions:

a) In line 1, why does the author say "one of the greatest"?
b) Why does the author use "may have come" in line 5?
c) To what does "which" refer in line 21?

Another kind of exercise with longer texts (some pages long) was to make them skim and scan the article looking for main ideas and/or specific information. This was done both as class activity and as home work. It also was evalutated in tests.

SAMPLE MATERIALS

ENGLISH FOR URBAN PLANNING

ORAL COMREHENSION IN THE LANGUAGE LAB.

"THE CITY" (adapted from "The City" by Ray Bradbury)

The city waited twenty-thousand years.
The city waited with its windows and its black obsidian walls and its sky towers, with its streets and its untouched doorknobs.
It was on a summer afternoon in the middle of the twenty-thousandth year that the city stopped waiting.
In the sky a rocket appeared and then landed fifty yards from the obsidian wall.
There were footsteps in the thin grass and voices from men.
"Ready?"
"All right men. Be careful. Into the city. Jensen, you and Hutchinson patrol ahead."
The city opened secret nostrils in its black walls and a steady suction vent drew air inside. The city was receiving odours from outside. Fire odour, the scent of a fallen meteor, hot metal: a ship has come from another world. This information was given to other machines. Click-chakk-chakk-chakk.................

****

I. Listen to the tape and answer the following questions:

1. This city might be in ____________________(place)

2. Give some characteristics of this city.

3. Who are the men that came in the rocket?

4. What kind of reaction do the men produce in the city?

5. Which of the men feels scared?

6. WHat is going on in this city?

7. What is your hypothesis about the captain's disappearance?

****

8. Through the story, we can infer that the author has several hypotheses concerning the future of the universe. Please name three in relation to: a) the earth's space program b)the earth's relationship with people from other planets, c) other planets' scientific progress.

FILM " THE ASIAN INSIGHT" - "SINGAPORE" (AUDIO-VISUAL MATERIAL)

1. Complete the following diagram using the information provided in the film on Singapore:

SINGAPORE: MULTIRACIALISM

MAJOR GROUPS

1. Chinese
Characterisitics:

2. ____________
Characteristics:
-non-comptetive

3. ______________
Characteristics:

Pre-Columbian settlements in Mesoamerica

Horst Hartung

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About one hundred years ago the pre-Columbian cultures of America first attracted attention and studies have since been promoted by the international congresses on American cultures. After an initial period of exploration and description of the great ceremonial centers, scientific investigations, often including restoration projects, began in earnest about 1930. Only in the last 20 years, however, has a multidisciplinary approach started to study not only the main sites, but all the related cultural aspects as well.

With the exception of a few small projects, no real investigation of the residential areas in the large ceremonial centers had been made. The general impression was that the people lived in small hamlets and came to their centers only for religious festivities. It was even thought that no real urbanism existed in pre-Columbian Mesoamerica, except in Tenochtitlan, which was destroyed by the Spaniards early in the sixteenth century. This was a well-organized large city on the present site of Mexico City.

New evidence, however, has demonstrated that the people lived in large urban communities around their ceremonial and civic centers. Tikal, the greatest known Maya center, was at first considered by scholars to have practically no permanent population, then was thought to have had 10 to 11 thousand inhabitants; recent studies now support the more realistic figure of some 50,000 inhabitants.

Prevailing ideas about the social structure of Mayan society have also changed. It was formerly considered to be very simple, probably governed by chiefs who might have changed at regular intervals as in modern Indian communities in southern Mexico. Now we have proof of a complex, stratified society with a succession of clearly established hereditary rulers as demonstrated, for instance, by the genealogy of more than 400 years attested for the governors at Tikal.

Four characteristic examples of different regions and periods of Mesoamerica were selected for this survey: Dzibilchaltun for the Maya zone, Monte Alban for the Oaxaca region, Teotihuacan as an early example from Central Mexico, and Tenochtitlan as a very late example from the same area.

Contemporary rural settlements in the Maya zone give an impression of conditions as they might have been one or two thousand years ago. The dwelling of the common people is a one-room house with a thatched roof, called *choza* (fig. 1). In antiquity these houses were often connected to others on a rectangular plaza, and several of these units were grouped around a more formal plaza with larger structures. There would also have been a temple on a small pyramidal platform, generally to the east (HARTUNG 1971). This type of settlement pattern was detected in the early 1960s in the central Maya region of the Petén. In the most important center, Tikal, at least 28 residential nuclear groups were distinguished, each with a temple and a building for meetings (HARTUNG 1971).

In the northern plains of the Maya zone, in Yucatan, the *chozas* were scattered in nuclear groups around one or more vaulted masonry buildings (similar to the one in figure 2) for the chief of the clan or leader of the group. These buildings would probably also have been used for administration.

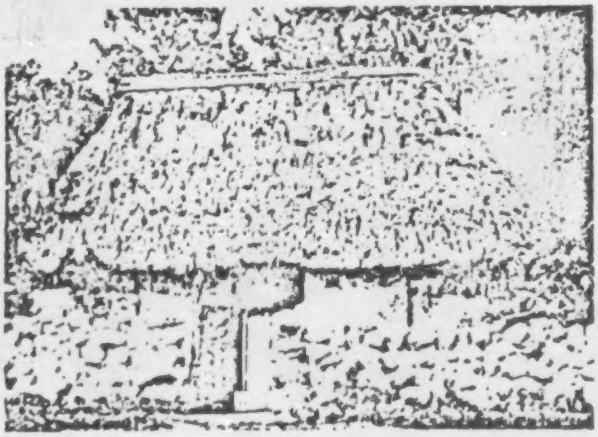

Fig. 1: Maya house with a thatched roof, Yucatan.

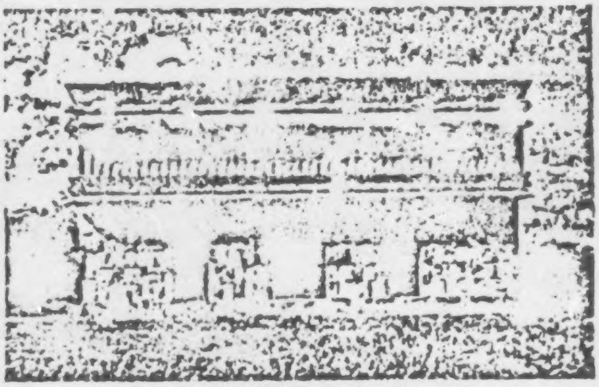

Fig. 2: House of the Turtles, Uxmal.

I. Skimming: Please read the article so you can get a general idea of of its content and then answer the following questions (remember that the title, subtitles, introduction paragraph, conclusion paragraph, illustrations, etc, can help you obtain the most important information included in articles).

1. A multidisciplinary approach helped scholars get a better idea of what Pre-Columbian settlements were like since they began to study not only______________________, __________________, _____, ___, _

2. What information do the subtitles of this article provide?

____, _________________

3. In Dzibilchaltun, the most important buildings were in ________ of the city.

4. The ceremonial center of Monte Alban was located on _____________

5. The main problem urbanists in Teotihuacan had to face was __________.

6. Which is the paragraph that introduces the main topic of the article and which is the one that provides a summary of it?

7. Write below three general characteristics of Pre-Columbian settlements.

8. Look at the pictures (fig. 1 and 2) given on page N°326. Figures 1 illustrates ____________________. Figure 2 is an example of ________.

9. What is the purpose of this article?__________, ______, _____________

II. Scanning:

1. Using the information found in the article, write a complete bibliographical reference of this work.

2. True or False; if False, underline what makes the statement false.

a. A multidisciplinary apporach has been used in the study of Pre-Columbian cultures since 1930.

b. There was no real urban planning in Pre-Columbian settlements.

c. The great Mayan centers such as Tikal had a permenent population.

d. The rulers of Mayan society were chosen in relation ot their genealogy.

e. The vaulted masonry buildings found in Dzibilchaltun were used by the chiefs of the groups and by the people involved in administrative matters.

CAUSE-EFFECT

THE EMERGENCE OF CITIES

Men come together in cities for security; they stay together for the good life.
Aristotle

This chapter outlines the growth of urban life from the first tentative agricultural villages of Kurdistan to the industrial cities of the nineteenth century. Largely archeological and historical material is included, not because there is anything sacred about beginnings as such, but because having some understanding of the origin and function of cities helps us to better understand contemporary cities and how and why they got to be what they are today. Thus our interest is not so much in the chronology of historical events as the patterns and processes of urban development.

Our knowledge of the spatial structure of ancient cities and the social life lived within them comes mainly from the research of archeologists and historians. Theirs is a difficult task, for there is very little verifiable information upon which to make firm statements regarding urban life of earlier centuries. As a result, relatively little of a cumulative sociological nature is known about early patterns of urbanization. Lewis Mumford has aptly stated the problem:

> Five thousand years of urban history and perhaps as many of proto-urban history are spread over a few score of only partly explored sites. The great urban landmarks, Ur, Nippur, Uruk, Thebes, Heleopolis, Assur, Nineveh, Babylon, cover a span of three thousand years whose vast emptiness we cannot hope to fill with a handful of monuments and a few hundred pages of written records.[1]

Sites means:

a. situations
b. locations
c. places

PRECONDITIONS FOR CITIES

What we know is that before cities could emerge and grow a number of preconditions had to be met.[2] Before the urban revolution could take place, an agricultural revolution was necessary. Only when the agricultural system was capable of producing a surplus was it possible to withdraw labor from food production and apply it to the production of other goods. The size of the urban population was thus directly related to the efficiency of agricultural workers; and agriculture remained primitive for millennia.

Goods means:

a. quality
b. products
c. sales

When the agricultural, or Neolithic, revolution began is lost in the dimness of prehistory, but it was a momentous event, for it made the emergence of permanent settlements possible. Perhaps as early as 15,000 years ago, during the Mesolithic period, there were hamlets from India to the Baltic area that based their culture on the use of shellfish and fish.[3] Within these Mesolithic hamlets possibly were seen the earliest domestic animals, such as pigs, ducks, geese, and man's oldest companion, the dog. Mumford suggests that the practice of reproducing food by plant cuttings—as with the date palm, the olive, the fig, and the grape—probably derives from Mesolithic culture.[4]

This process of settlement entered a second stage between 10,000 and 8,000 B.C. with the systematic gathering and planting of certain seeds.

PRE-READING

1- Read the following paragraph and answer the questions below.

> What we know is that before cities could emerge and grow a number of preconditions had to be met. Before the urban revolution could take place, an agricultural revolution was necessary. Only when the agricultural system was capable of producing a surplus was it possible to withdraw labor from food production and apply it to the production of other goods. The size of the urban population was thus directly related to the efficiency of agricultural workers; and agriculture remained primitive for millennia.

a. What is the main function expressed in this paragraph?

b. Underline the key words used to express such function.

c. How is sentence (4) different from the others?

- Read the following paragraphs and: a) indicate the predominant function and b) underline the key words used to express such function.

- Whether this surplus created institutions such as the city or whether the institution of the city brought about the process of creating and storing a surplus is one of history's unanswerable questions. The truth probably is that the relationship was reciprocal. The result of the relationship was the first cities.

- The use of rivers for transportation further encouraged the aggregation of population, for now it was relatively easy to gather food at a few centers. Thus in the valleys of the Nile the Tigris-Euphrates, and the Indus there first developed a population surplus which in turn permitted the rise of the first cities. By the third century B.C. the Egyptian peasant from the fertile river flood plain could produce approximately three times the food needed.

- The city's greater population density, along with its sedentary way of life, made possible the development of an urban culture emphasizing trade, manufacturing and services. The earliest cities began to evolve a social organization immensely more complex than that found in the Neolithic village. The slight surplus of food permitted the emergence of a rudimentary division of labor. No longer did each man have to do everything for himself.

- There is fairly clear evidence that about 8,000 B.C. in the Middle East there was a transformation from a specialized food-collecting culture to a culture where grains were cultivated.

.I. READING ACTIVITIES

A. MATCH THE WORDS CONTAINED IN COLUMN (A) WITH THE WORDS IN COLUMN (B).

urban revolution
date palm
slash-and-burn
Indus
palm
city walls
artisans
agricultural revolution
Mesolithic
Neolithic
division of labor
storage

1. survival
2. hunting and gathering
3. permanent settlements
4. production of other goods
5. plant cuttings
6. fiber for rope
7. way of farming
8. river valley settlement
9. siege
10. non agricultural commodities
11. herd animals
12. cities

B. COMPLETE THE FOLLOWING SENTENCES USING THE WORDS IN THE BOX.

1. Food production was significantly increased with the use of draught animals such as __________ and __________.
2. In the Nile valley three important crops were cultivated: __________, __________ and __________.
3. City dwellers took precautions in constructing walls around the city in order to protect themselves against __________ and __________.
4. In Egypt, __________ were used to store __________ __________.
5. In the first cities, the social stratification began with __________, __________ and some peasants among the __________.

date palm wood barley geese wheat
horses oxen nomadic raiders conquerors
siege sheep granaries priests food surplus
warriors agriculturists

C. DISCOURSE CONNECTORS

1. In paragraph 1, "thus" means
   a. in summary
   b. in additon
   c. therefore
2. In paragraph 2, "AS a result" indicates
   a. consequence
   b. modification
   c. emphasis
3. In paragraph 6, "Since" can be replaced by
   a. whereas
   b. because
   c. owing to

COMPARISON

PRE READING EXERCISE

1. Read the following excerpts (taken from the reading of the unit on Comparison), underlining the words or phrases used to indicate comparison:

a. In general, the later each country became industrialized, the faster was its urbanization.

b. The process started much later than in the industrialized nations, as can be seen by comparing this chart with the one at the top of the page .

c. In spite of the enormous growth of the cities, the rural population of the underdeveloped countries...is growing at a rate that in many cases exceeds the rise of even the urban population during the evolution of the now advanced countries.

d. Most modern cities are similar to ancient cities in that the government buildings are found in central areas. They are different however, in that the ancient city has only one central area, whereas the modern city has many.

e. The horse of the pre-indusrial society was able to transport only a limited quantity of goods, and therefore was inadequate as a means of transport in the industrial society. Steamtrains inevitably replaced the beast of burden.

****

2. Now go back over the excerpts and state WHAT is being compared in each one. State too whether the comparison is one of similarities and/or differences.

a. b. c .

etc.

3. Match the letter of the excerpt with the main criterion used in the comparison:

i. _______time and unspecified items

ii. _____statistics

iii. ______process

iv. _______function (use)

v. ________ time

vi. ______ rates

vii. ______structure

viii. description _________

HYPOTHESIS

READING NUMBER ONE

1 ***SUMMARY*** *Existing U.N. projections show urbanization trends continuing unabated over the final quarter of this century. A world which was 29 percent urban in 1950 and 39 percent in 1975 is projected to be half urban by the year 2000. Can this rate of urbanization continue? Our research at the Worldwatch Institute on food and energy prospects and the future employment situation raise doubts as to whether projected urbanization rates will materialize. We do not expect the trends of the quarter century now beginning to be a simple extrapolation of the one just ended.*

2 *The basic premise that urbanization trends will continue unaltered, leading to a world of huge urban agglomerations by the end of this century, is underpinned by three implied assumptions: food surpluses produced in the surrounding countryside or imported from abroad will be sufficient to feed the burgeoning urban populations, cheap energy will be available to underwrite the additional energy costs of urban living, and sufficient productive employment will become available in the cities. Neither these underlying assumptions nor, therefore, the basic premise are likely to hold.*

3 *If the trends of the past several years continue, the collective import needs of the 100 plus importing countries will eventually greatly exceed the exportable supplies from North America, particularly when the harvest is poor. Overwhelming dependence by the world's cities on imported food supplies from a single geographic region in a world of food scarcity brings with it a vulnerability to external political forces and climatic trends that is risky indeed. This being the case, countries would do well to re-examine urbanization policies and consider whether continued rapid urbanization and the associated growing dependence on distant food supplies is in their national interest.*

4 *The large scale migration of people from countryside to city requires an abundance of energy. In an urban environment, additional energy is required to satisfy food, fuel, housing, and transport needs. Assuming no change in consumption levels, each person who moves from the countryside to the city raises world energy requirements. As the urban population increases relative to the rural food producing population, additional energy is required in agriculture to generate this requisite food surplus. At the same time more energy is needed to process the food and transport it to urban areas. Cheap nuclear power has often been cited as the source of energy for cities of the future. If the environmental and economic problems with nuclear power cannot be overcome, the only logical alternative, solar power, will require a dispersed population to be effective.*

5 *A third assumption implied by the projections of urbanization trends is that jobs will be available in the cities. But this assumption is at least as questionable as those in food and energy. One of the most intractable problems facing governments in the years ahead is that of providing employment for the rapidly swelling numbers of young people coming into the job market. Projections by the International Labor Organization indicate that the industrial countries will need to create 161 million additional jobs during the 1970-2000 period, or an increase of 33 percent. The developing countries meanwhile must attempt to create 922 million new jobs, nearly double the number of jobs that exist today.*

6 *If the flow from the countryside to the city should continue unabated, some harsh correctives will likely begin to operate in the not too distant future. Among these will be food shortages in the cities, energy shortages that will hamstring the economy, and rising levels of unemployment. The secondary signs of stress will be uncontrollable inflation, increasing nutritional stress, growing dependence on external food and energy imports, and an associated rise in external indebtedness. Finally, rising urban employment would likely lead to social unrest and political instability.*

7 *The conditions on which the massive movement from the countryside to the cities has been based over the past quarter century do not appear to be sustainable. It is incumbent on political leaders to recognize this and to eliminate the overwhelming urban bias in resource allocation, adopting a much more balanced approach, one consistent with the new food, energy, and employment realities. The most effective efforts to ameliorate the problems facing cities may well be those to improve living conditions and productivity in the countryside.*

THE URBAN PROSPECT: RE-EXAMINING THE BASIC ASSUMPTIONS

LESTER R. BROWN

1 Lester R. Brown is President and a Senior Researcher with Worldwatch Institute. Formerly a Senior Fellow at the Overseas Development Council and Administrator of the International Agricultural Development Service of the United States Department of Agriculture, which coordinated efforts to expand food production in some 40 countries. He is the author of Seeds of Change, World Without Borders, In the Human Interest, By Bread Alone and the forth coming book The 29th Day: Accommodating Human Needs to Human Numbers on A Small Planet, (W. W. Norton, 1977). Address: 1776 Massachusetts Avenue, N. W. Washington.D. C. 20036-U.S.A.

PART ONE

EXISTING U. N. projections show urbanization trends continuing unabated over the final quarter of this century. 2 A world which was 29 percent urban in 1950 and 39 percent in 1975 is projected to be half urban by the year 2000. Can this rate of urbanization continue? Our research at the Worldwatch Institute on food and energy prospects and the future employment situation raise doubts as to whether projected urbanization rates will materialize. We do not expect the trends of the quarter century now beginning to be a simple extrapolation of the one just ended.

3 The basic premise that urbanization trends will continue unaltered, leading to a world of huge urban agglomerations by the end of this century is underpinned by three implied assumptions: food surpluses produced in the surrounding countryside or imported from abroad will be sufficient to feed the burgeoning urban populations, cheap energy will be available to underwrite the additional energy costs of urban living, and sufficient productive employment will become available in the cities. Neither these underlying assumptions nor, therefore, the basic premise are likely to hold.

The Food Assumption

4 In order for people to move from the countryside to city, there must be a surplus of food produced in the rural areas that can be used to feed the dependent urban populations. These surpluses may come from the surrounding countryside or they may be imported from abroad. From the first urban settlements several thousand years ago until the middle of this century, cities were sustained largely, if not entirely, by the food produced in the surrounding countryside. Since then more and more cities have come to depend on food imports, largely from North America. Accelerating urbanization since midcentury has been closely paralleled by the vast growth in food shipments from North America.

5 Forty years ago North American grain exports averaged 5 million tons per year. As of 1950 they had increased to 23 million tons and by 1970, to 56 million tons. During the current year, North America will export an estimated 94 million tons of grain. In consumption terms, the farmers of North America are exporting enough grain to feed, at their respective consumption levels, 560 million Indians or 115 million Russians.

6 The world food trade pattern has been altered profoundly in recent decades. A generation ago, Western Europe, which was the most urbanized region, was also the only importing region. Each of the other continents was exporting grain in at least some quantity. By 1976, that situation has been changed beyond recognition. Virtually the entire world has come to depend on North American food exports. Asia, Africa, Latin America, Western Europe, and Eastern Europe, including the Soviet Union, are net grain importers (See Table 1). A great amount of the food imported into these regions is used to feed the cities.

7 Further analysis on a country by country basis shows that the world today consists almost entirely of food deficit countries. Those remaining as important exporters at the global level can be numbered on the fingers of one hand. While scores of new food importers have emerged over the past two decades, not a single new exporter has emerged! Emerging deficits in some countries are due to the inability to expand food production apace with rapidly multiplying populations. In other countries, these deficits are a matter of mismanagement and of agricultural neglect, treating agriculture as a stepchild while giving the cities priority for new investments. All too often, deficits are the product of both factors.

8 Not only are nearly all countries today food importers but a growing number now import over half of their grain supplies. Among these are Japan, Belgium, Senegal, Libya, Saudi Arabia, Venezuela, Labanon, Switzerland, and Algeria. Others rapidly approaching a similar degree of dependence on imported foodstuffs include Portugal, Costa Rica, Sri Lanka, South Korea and Egypt.

TABLE 1. The Changing Pattern of World Grain Trade[1]

Region	1934-38	1948-52	1960	1970
			(Million Metric Tons)	
North America	+ 5	+ 23	+ 39	+ 56
Latin America	+ 9	+ 1	0	+ 4
Western Europe	—24	—22	—25	—30
E. Europe & USSR	+ 5	—	0	0
Africa	+ 1	0	— 2	— 5
Asia	+ 2	— 6	—17	—37
Australia & New Zealand	+ 3	+ 3	+ 6	+ 12

Sources: Derived from FAO and USDA data and authors's estimates.

1 Plus sign indicated net exports; minus sign, net imports.

2 Preliminary estimates of fiscal year data.

A. Summary: Complete the following outline which includes the main ideas presented in the summary of this reading.

I. PROJECTIONS OF URBAN TRENDS

1. According to the U.N. --

1.1. Assumptions:
a.
b.
c.

2. According to_____________: -------------------------

2.1. _____________:
a.
b.
c.

II. _______________________RELATED TO URBAN GROWTH

1.
2.
3.
4. inflation
5.
6.
7.
8.
9.

III. PREVENTIVE MEASURES TO AVOID THESE PROBLEMS

1.

2.

3.

B. EXERCISES ON PART ONE

1. From reading the author's curriculum in the first paragraph, what would you say is his main concern about the world and its future?

2. "unabated" as used in the first sentence of paragraph #2 means:
a. being ar full strength   b. unfinished
c. lacking help from outside   d. unbeatable

3. Write below the four hypotheses presented in the second paragraph and indicate who proposes each of them:
1.
2.
3.
4.

4. Give some examples of "huge urban agglomerations" from our world at the present time.

5. What is the relationship between the ,basic premise" and the "underlying assumptions" as stated in paragraph #3?

6. In paragraph 3, the two adjectives used with "assumptions" (__________ and ______________) are very ______in meaning.

7. The surplus of food needed to feed people in the city comes from:
   a. the rural areas b. abroad
   c. the surrounding countryside
   d. all of the above

8. Represent graphically the change that has occurred in the way food has been acquired by city dwellers from the first urban settlements to the present.

9. Study table one and answer the following questions:

   a. Which areas of the world were still exporting grain in 1976?

   b. What are the differences between Western Europe's pattern of grain trade and Asia's?

****

10. State below: a) the author's hypothesis in realtion to the food assumption and urban growth, b) evidences presented by him which validate hsi hypothesis (you can do this in outline form).

ARGUMENT

Small enterprises and the "informal" sector

12 The "informal" sector tradition in development work has tended to obscure the differences between the units which comprise that mass. By lumping together the individuals, families and enterprises which one intuitively believes to constitute that sector, one effectively precludes analysis of its growth prospects while at the same time impeding investigation of its diverse parts. Indeed, there is an emerging consensus that the continued use of the "informal" sector concept obfuscates the work that has to be done to understand employment and housing patterns in LDCs' cities. To quote from the President of the African Studies Association of the U.K.: "An informal sector is not only a piece of needless obscurantism but also raises the question of whether these activities do in fact constitute a sector."[11] The ILO World Employment Programme survey for the Sudan argued similarly that "our understanding of the informal sector would be enhanced if we viewed it as a heterogenous, multidimensional or multilayered phenomenon." To do this they distinguished four sub-groups, each of which was then analysed separately. Their conclusion was that:

> 13 The picture that emerges for the informal sector in the Sudan is that of heterogenous and complex activities. At its most advanced level, where the majority of establishments exist, we have the multitude of small manufacturing, service and commercial establisments employing a large number of people who are making a reasonable living and who are there to stay Finally we have the traditional petty vendors who are in transition to and from formal sector jobs and who at the moment do not seem to constitute a significant portion of the Sudanese informal sector.[12]

14 From the point of view of housing, the shortcomings of the "informal" sector as a vehicle of analysis are four in number. First, it overlooks the fact that a proportion of those at work within it are only seasonal urban workers. At other times of the year they will be elsewhere in the country, in a neighboring LDC, or even perhaps in a different occupation within the city.

15 The nature of the agricultural work undertaken in rural areas in LDCs gives rise to marked differences in the intensity of labor demand through the year. If farm work is not supplemented by rural non-farm activities there will clearly be periodic excess supplies of labor time. One response on the part of those faced with this is to seek work in other rural areas or in the towns, with the intention of returning in time for the next seasonal peak.

1. lumping: putting people together into an irregular group.

2. precludes: to impede, to hamper.

3. while expresses: a) contrast b)simultaneity

4. indeed indicates: a) additional information b) contrast c) emphasis.

5. Is the sentence "our understanding of the informal sector........phenomenon" (parag.12), a known fact or a hypothesis? Support your answer by reference to the structure of the sentence.

6. Is the information presented in this paragraph (12) new or does it restate information mentioned before? Where and what is the information?

7. petty vendors:trivial sellers.

8. What is the Sudanese informal sector composed of? Use a diagram to answer.

9. shortcomings mean: a) characteristics b) defficiencies c) features.

10. overlooks means: a)takes into account b) ignores c) concentrates too much on

11. peak: the highest point of degree in an activity.

12. spells: periods

13. What does the author imply with "seasonal urban workers"?

14. cohorts: companions

15. tenants: people who live in rented places-.

16. landlords: people who own rented places.

if the goods these stalls normally sell are packaged in a more attractive way to captivate the tastes of a new wage-earning enclave, the response of those small stall-holders who cannot stock such goods will be to sell direct to cars and passers-by. This means that not only is traffic-flow impeded, but that the pattern of urban store rents is affected.

20 Two of the few studies which have so far looked at the variations contained within an occupational group are those of Sarin and Newcombe. Sarin's study of market-place traders in Chandigarh, India, set out by rejecting a homogenous approach in favour of distinguishing seven categories of units, ranging from itinerant hawkers through mobile *rehris* (barrows) to *khokhas* (improvised structure such as awnings).[18] In this way he could identify different obstacles to the growth of each size and type of stallholder. Similarly, Newcombe's account of Hong Kong's street traders being squeezed out by the growth of supermarkets shows how government intervention to favor supermarket growth militates against the interests of the bulk of the population, who are best served by competition between roadside food vendors located near their homes and places of work.[19]

Conclusions

21 The foregoing sections suggest that there are many links between the structure of urban economic opportunity and the extent and pattern of housing demand. Analysis of housing needs is likely to be partial and unsatisfactory if it overlooks the sorts of forces just discussed. In turn, further study of the poor in shanty towns must continue to break down the aggregated categories ("formal," "informal," and "unemployed") which have hitherto obfuscated the forces in the city which create the types of work which become available. A first step towards this is recognising the mobility of people between "sectors," and the straddling of family groups across these boundaries. At the same time the attitudes which each of these groups bring to housing must be analysed in this light. For failure to proceed along disaggregated lines is likely to result in inappropriate public housing provision or private provisions which fail to make best use of the materials to hand.

37. Is the situation described in the last two sentences of parag. 19 typical of Caracas? Give examples. ______________________________

____

38. barrows: a push cart, a handcart.

39. awnings: a canvas covered frame or similar structure that shelters a window, deck or the like from rain and sun.

40. "Sarin and Newcombe" refer to places or names? ______________________

41. Would the majority of people in Hong Kong be better supplied and served by the supermarkets or local food vendors? ____________

____

42. Does the conclusion offer a solution to the problems described or does it summarize what was developed throughout the article? ________

____

43. hitherto: so far.

44. foregoing: previous.

45. Can you get examples in the article for:

a) mobility of people bewteen and within sectors: ______________________

____

b) the straddling of family groups across these boundaries: ______________

____

c) attitudes which each group brings to housing

____

____

46. Reorder the steps in reasoning developed by the author throughout the article, and number the paragraphs in which such steps appear.

- -Analysis of the different ways of classifying the urban poor.
- -Illustration(case studies)
- -Formulation of the problem
- -Division of the urban poor in groups and analysis of their individual housing preferences.
- -Background information in order to state the problem in question.
- - Refutation of traditional classification and analysis of its defficiencies.
- -Brief statement of the possible solution to the problem.

47. Does the author do what he promises to do in the first few paragraphs? ____________

____

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CHAPTER V

TESTING IN ESP: AN ECLECTIC APPROACH

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1. Introductory Remarks

1.1. The Importance of Testing--or Why Test?

Testing undoubtedly constitutes the culminating point of any serious attempt at curriculum design and implementation. Indeed, it might be considered the classic "moment of truth", when both teacher and student finally become aware of the extent to which each has succeeded--or failed--in attaining certain stipulated goals or objectives. This moment is all the more crucial by virtue of the relatively large amounts of time and effort that have usually preceded it. At this point, the question uppermost in the minds of the two individuals directly involved in the learning experience (ie. the student and the teacher) is whether or not their efforts were well-directed or even worthwhile.

More often than not, there are no final answers. Yet, with careful planning and analysis, tests can provide not only an assessment of whether, and to what extent, teacher and student have achieved their respective objectives, but also data on which to base improvement of the teaching-learning process. Thus, by implication, the role of testing can be and, we believe, should be extended to include the evaluation and consequent revision of related aspects of course design and implementation.

1.2. Aims and Focus of this Study

Since this study forms an integral part of a larger project aimed at developing a systematized approach to the design and teaching of ESP courses in a particular context, the topic of testing will be discussed in accordance with the focus of the project as a whole, namely, the perceived need and subsequent search for suitable means of establishing common goals, and common procedures for attaining them. For this reason, the topic will be treated within the following organizational scheme: Using as a basis recent studies on testing in general and, more specifically, the testing of communicative performance in English as a Foreign Language (EFL), those aspects of theory will be highlighted which promise to be profitably applied to the formulation of a framework for test development in ESP courses for post-first year students at the Universidad Simón Bolívar (USB). Subsequently, the testing methods currently utilized in these courses will be described in relation to the theoretical framework previously outlined. Then, in the light of conclusions resulting from this comparative analysis of current theory in language testing and actual testing practices, we will propose what, it is hoped, will prove to be a viable methodology for formulating tests and quizzes in ESP courses at the USB.

It should be borne in mind that the intention behind proposing a common methodology is by no means that of imposing prescribed patterns of thought or behaviour on individuals in charge of designing and teaching ESP courses. Rather, ours is more rightly viewed as an attempt to establish clear, wellfounded guidelines with the object of avoiding arbitrary decisions, and resultant time-consuming mistakes, in the testing component of course design. Needless to say, any procedures or instruments utilized for testing purposes must necessarily conform to the specific teaching-learning situation faced by teacher and students in a given ESP course.

2. Some Fundamental Aspects of Testing

2.1. Testing as a Form of Evaluation

As a rule, the term "testing" is included within the wider concept of "evaluation", the latter being broadly defined as the making of comparisons between any person or entity and a previously established model or criterion. In this sense, evaluation and judgment are synonymous. Within the more restricted context of educational evaluation, three main types can be distinguished: (a) evaluation of the administrative and organizational aspects of an institution; (b) evaluation of the effectiveness of teachers responsible for implementing a given programme; and (c) evaluation of student achievement of course objectives (Villarroel 1974). Central to all three types is a comparison--either explicit or implied--between certain established aims, goals or objectives and their actual accomplishment. Implicit in this classification of educational evaluation is the idea (briefly mentioned in the Introductory Remarks) that evaluation plays both a diagnostic and valorative role in curriculum design and implementation. The diagnostic role corresponds to a process of formative evaluation, while the valorative role is more closely related to what has been termed summative evaluation (Bloom et al. 1975; Gage and Berliner 1979).

It has been pointed out in both studies that summative evaluation is essentially an administrative technique in which classroom teachers are rarely involved, since the emphasis is placed on determining in a general way the extent to which the broader administrative and curricular requirements have been met. Hence, this is a job for outside experts "skilled in measuring achievement, attitudes, opinions and interests, and in examining the economics , management, and politics of education." (Gage and Berliner, 1979, p. 701) Formative evaluation, on the other hand, does fall within the competence of the teacher whose aim is precisely that of determining whether a student has mastered the specific learning objectives for a given course. Should there be any discrepancies between the desired and actual outcomes, a formative evaluation will be instrumental in pinpointing a specific problem area. The object is not necessarily to rank or categorize the student, but rather to help both teacher and student to concentrate on the particular types of learning activities necessary for attaining the objectives (Bloom et al. 1975). This type of evaluation is carried out with the student and not on him (Villarroel 1974).

An obvious conclusion that can be made from even this brief discussion of the concepts of formative and summative evaluation is the relativity of the term "evaluation". It therefore follows that the selection of instruments for "evaluative" purposes will be circumscribed by the kind of information one expects to obtain, as well as the particular uses to which this information will be put. Since the role of evaluation, whether summative or formative, in curriculum design falls more appropriately within the area of systems analysis applied to educational and instructional planning, [1] for purposes of this paper, the term evaluation will be used in the sense of testing, defined as the process by means of which the objectives established for a course are compared with student achievement of these objectives (Villarroel 1974). By this definition, a test is:

> " a systematic procedure for measuring a sample of a person's behavior in order to evaluate that behavior against standards and norms" (Gage and Berliner, 1979, p. 686).

This definition warrants some explanation of the terms used in its configuration.

2.2. Achievement Testing: 'Minimum Essentials" vs. "Maximum Development"

The choice of a systematic or standardized approach is, as mentioned above, justified on the grounds of the obvious advantages of such a procedure over irregular, unsystematic observations. Measuring can be broadly defined as " a quantitative estimate of a person's ability or achievement" (Gage and Berliner, 1979, p. 686), yet this estimate may be either objective or subjective. An objective test is one which lends itself to reaching a consensus in the interpretation of scores obtained. On the other hand, a test is said to be subjective if attaining a consensus proves difficult due to the existence of criterial differences or even the impossibility of establishing criteria. The learner's behaviour is sampled because : (a) tests must rely only on what is observable if they are to be considered a rational means of estimating achievement; and (b) it would be impractical, if not impossible , to specify all the specific learning outcomes for each instructional objective at the developmental level (Gronlund 1978). In this regard, it should be kept in mind that "...failure to distinguish between instructional objectives that are considered minimum essentials and those that encourage maximum development has caused considerable confusion in both teaching and testing" (Gronlund, 1978, p. 41). As defined by Gronlund, minimum essentials are typically low-level, easily attainable outcomes which serve as prerequisites to further learning, while the developmental level, exemplified by such cognitive abilities as comprehending, applying, interpreting and thinking critically, represents objectives which students may attain in varying degrees but which can never fully be mastered.

2.3. Norm-referenced vs. Criterion-referenced Testing

It has been stated that the purpose of a test is that of evaluating , as opposed to merly measuring, a sample of the learner's behaviour. That is to say, the measurement process supplies numerical data, but it is the judgmental interpretation of this data in relation to standards or norms that makes testing such a valuable tool for assessing an individual's achievement or ability. Norms are used in norm-referenced testing as a basis for interpreting an individual's score in relation to the scores of other individuals (Gage and Berliner, 1979, p. 690). Standards are characteristic of criterion-referenced testing where the aim is that of measuring the learner's ability with respect to established and absolute criteria. Thus, a student's numerical score will be interpreted differently depending on the standards used. Accordingly, it is well worth noting that

> "...at the developmental level of learning where maximum achievement is the goal, useful standards of performance are extremely difficult, if not impossible, to define. Thus, it is usually necessary to describe test performance in relative terms; that is, in terms of where a given test score falls in some particular group...the test score indicates a relative level of achievement only; therefore, the nature of the group must be taken into account when (interpreting) the score" (Gronlund, 1978, pp. 44-45).

Since an achievement test is essentially a means of obtaining a sample of student behaviour, it follows that this sample should reflect both the instructional objectives and the content emphasized in a particular course. The likelihood of obtaining a suitably representative sample is increased if test preparation adheres to the type of systematic procedure recommended by Gronlund (1978, p.48):

> " 1. State the general instructional objectives and define each objective in terms of the specific types of behavior students are expected to demonstrate at the end of instruction;
> 2. Make an outline of the content to be covered during the instruction;
> 3. Prepare a table of specifications that describes the nature of the test sample;
> 4. Construct test items that measure the sample of student behavior specified in the table."

The importance of setting up a table of specifications cannot be overemphasized for, in addition to facilitating classification of test items with regard to course objectives and content, the table also serves as a method for determining the number of test items needed to obtain a true reflection of the objectives and topics stressed throughout an entire course or part of a course. This statement should not, however, be taken too literally. Rather, the classroom teacher should seek to ensure at all times that tests are, in fact, probing achievement of objectives in modes or contexts which do not mirror those in which teaching was effected. Otherwise, achievement tests might easily degenerate into mere tests of memory. Yet another advantage of the table of specifications is the very positive contribution it can make toward enhancing test reliability and validity , although to a large extent problems connected with reliability and validity are obviated by criterion-referenced tests.[2] Besides its utility in test designing, the table of specifications can also facilitate the essential diagnostic function of tests, thereby enabling teacher and student to pinpoint specific areas of inadequate achievement necessitating further instruction.

2.4. Testing Communicative Performance: Item Types and Formats

A survey of the bibliography related specifically to the testing of English as a foreign language yields much valuable information concerning standardized proficiency tests. However, two studies (Cohen 1980 and Carroll 1980) stand out as particularly relevant and applicable to testing a learner's communicative performance as this has been envisaged by members of the ESP section at the USB. The applicability of the above studies can no doubt be attributed to the following factors:

(a) their emphasis on test development for courses based , as those at the USB are, on a communicative and functional theory of language;

(b) their comprehensive and objective treatment of a variety of item types, including both discrete-point and integrative items;

(c) the clear distinction made between proficiency and achievement testing (primarily in Cohen's study) and their definitions of key terms commonly used for describing test questions; and

(d) the wealth of practical guidelines and suggestions for the language teacher faced with the necessary, but no less complex, task of designing tests which are reliable and valid measures of learner achievement.[3]

In accordance with the dual aim of stressing those aspects of tests and test items which make for a relatively economical process of test design and, at the same time, promoting the testing of functional language ability[4], Cohen argues in favour of adopting what he has termed a "distinctive-element approach". It is suggested that

> "...instead of talking about discrete-point items and integrative items separately, we give more focus to items and procedures that are somewhere along a continuum from most discrete-point to most integrative. Such an approach encourages the teacher to pay attention to all the things that a particular item tests for." (Cohen, 1980, pp.64-65)

Thus, a distinctive-element approach would involve fundamentally an analysis of the various components of a given test item, that is, the item-stimulus format, the item-response format, and the tested response behaviour,[5] in order to ascertain precisely which language features are being elicited by the item and whether the response behaviour is being measured directly or indirectly. The example cited by Cohen is that of a cloze test which is in fact "an indirect test of integrative reading ability in that it is not assessing reading ability directly, but rather the ability to write words into randomly deleted blanks as a measure of reading ability" (Cohen, 1980, pp. 64-65). A cloze test can therefore be classified as an "indirect integrative test".

The distinctive-element approach is also very much in keeping with the communicative-functional requirement of distinguishing between usage and use for teaching as well as testing purposes. As indicated by Carroll (1980), this implies that test items cannot be selected on linguistic grounds alone, and indeed specification of how the testee requires to use the language is essential. In other words, the test designer--like the curriculum planner--must be aware of the testee's communicative needs. By this token, vocabulary, grammar and pronunciation are "contributary linguistic skills" (or "minimum essentials", in Gronlund's terminology) and not final criteria for communicative performance.

On quite similar grounds, a case is made for the use of integrative items for testing functional language ability (communicative performance) in the classroom:

> "...the very systems of meaning that have been identified to describe different layers of meaning in text immediately suggest the almost obligatory integrativeness of attempts to test reading comprehension. These layers of meaning in text include 'notional' meaning (basic semantic categories); 'propositional'

> meaning (the information content of the material); 'contextual' meaning, consisting of text-level cohesion and discourse-level realization of functional categories like 'assertion' and 'justification'; and 'pragmatic' meaning (referring in this context to the attitude and purpose of the author)" (Cohen 1980, p. 67).

Moreover, it is pointed out that while, in theory, discrete-point items test a series of points separately and integrative items test several points all at once, in fact, some discrete-point items (known as "hybrids") really test more than one point at a time. Indeed, multiple-choice items (the assumed discrete-point item type par excellence) can be designed so that each distractor is illustrative of a particular kind of inability to understand.[6] Then presumably the testee who selects the correct alternative would be demonstrating achievement of a particular aspect of functional language ability specified in the course objectives.

Nevertheless, " the demands of authenticity (a concept basic to communicative test development) will often conflict with the need to produce a reliable testing instrument" (Carroll, 1980, p. 37). In effect, the test developer must confront the challenge of effecting a rigorous measurement of language-based performance while striving to maintain the essential features of communicative behaviour. In a critique of three test format categories (ie. open-ended, closed-ended and restricted-response)[7], even though acknowledging the maximum authenticity and relevance of an open-ended format, and the scoring objectivity and economy in marking afforded by a closed ended format, Carroll favours a restricted-response format since, to a large extent, this test format combines the flexibility of the former with the scoring objectivity and economy in marking of the latter. Restricted-response items are also considered relatively economical to construct, while open-ended items are at a disadvantage owing to problems of comparability and economy. The objection to closed-ended items is based on what is viewed as their excessive restrictiveness and a possible "backwash effect" on teaching programmes.

2.5. Implications for Testing in ESP

However, in referring to single-focus tests--in this case, tests of reading comprehension--Carroll allows that a " major focus on reading and understanding a text suggests keeping to the closed-ended or restricted-response formats" (Carroll, 1980, p. 39). This possibility is exemplified by sample items for a variety of skills amenable to testing taken from the Munby list. And finally, Carroll observes that "...in ESP what is being tested is not a general language mastery, but the ability to perform appropriate communicative operations requiring specified language skills and insights in specified subject areas" (Carroll, 1980, pp. 58-59).

In this section of the paper an attempt has been made to synthesize information on testing gathered from a variety of sources while placing special emphasis on those aspects most relevant to our purposes of testing student achievement in ESP courses at the USB. If it is at all possible to reach a conclusion, it is that which has already been aptly expressed by Gradman's resumé of research in EFL as reflecting the notion that " there are far too many limitations in current research to make a compelling case for any one 'best' procedure " (Gradman, 1978, p. 44). The implications for testing are that perhaps " the best way to test in the classroom is through a multifaceted or eclectic approach, whereby a variety of methods are used " (Cohen, 1980, p. 11) and, basically, this is the view which has been taken by ESP teachers at the USB.

Admittedly, the theoretical background of testing is a fascinating and essential preliminary to establishing a coherent framework for test development, but it is time we delved into the realities of testing as conducted in our particular ESP teaching situations.

3. Current Testing Methods in ESP Courses at the USB

3.1. Course Objectives as Testing Objectives

The concept of needs anaysis is central to ESP, both in the initial stages of curriculum planning and for subsequent steps in course design and implementation. Hence, if the objectives of a course can be said to reflect the learner's needs, it is equally true that test objectives will be a reflection of course objectives. That is to say, the initial process of assessing learner needs determines the objectives of an ESP course which, in turn, are the basis for decisions concerning the type of testing methods to be employed. Similarly, information provided by the student profile facilitates the task of the test developer, who then has a clearer notion of what type of testing methods and instruments would be most apt for a given kind of testee.[8]

3.2. Testing in Context

Yet, test characteristics will derive not only from certain sociolinguistic, psychological and pedagogic considerations, but also from the particular administrative structure of the educational setting in which instruction takes place. At the USB, teachers must endeavour to combine the formative character of criterion-referenced achievement testing with the administrative requirement of ranking students on a scale from 1 to 5 (where 5 is the maximum) over a three-month period. This requirement is further conditioned by regulations stipulating that at least 60 percent of the student's final course evaluation must be known by the withdrawal date, which usually falls sometime soon after mid-term. However, within the limits of these broad institutional directives, the teacher enjoys complete freedom as to the type, frequency, purposes and ultimate evaluation of the testing methods employed.

In ESP courses offered to students of Architecture, Biology, Computer Science, Electronic Engineering, Mathematics and Urban Planning, the nature of tests is chiefly determined by the fact that reading comprehension emerged from the needs analysis as the primary objective to be pursued in those courses. Considerably less emphasis is placed on the objective of listening comprehension, while speaking and writing are introduced, not so much as objectives per se, as teaching strategies in the interest of greater motivation and dynamism in the classroom. The levels of difficulty of tests are set in relation to those the students have shown themselves capable of handling during similar classroom tasks. The frequency with which students are expected to take quizzes or tests depends on the overall organization of the course into units or modules, as well as administrative deadlines for making grades available. Another factor influential in determining frequency of testing is the degree of student motivation for following a given ESP course. For instance, in ESP courses taken as electives motivation is usually higher than in the obligatory courses. Consequently, teachers of obligatory courses often have recourse to testing as one means of ensuring regular attendance on the part of students.

In fact, this somewhat coercive role of testing is never entirely absent from testing in an institutional context, the difference usually being one of intent on the part of the teacher. Seen in a more positive light, testing motivates the student to focus attention on course objectives and materials throughout the instructional process and just prior to taking a quiz or test. The role of testing is thereby extended from one of post facto assessment to include a direct, simultaneous effect on the instructional process. Accordingly, continuous evaluation is a characteristic feature of ESP courses at the USB.

3.3. Determining Test Content

Once the general focus and aims of testing have been established, the next step is the specification of test content, that is, it then becomes necessary to describe the kinds of behaviour to be elicited by the test. In this respect there are basically two factors which must be taken into consideration: 1) what it is we want to test; and 2) how to test it (Cooper 1972). The answer to the first question is easily obtained by referring to the general and specific objectives formulated for each ESP course: we are testing reading comprehension and, to a lesser extent, listening comprehension.[9] However, in order to make decisions pertaining to precisely how student attainment of these objectives should be elicited, some deliberation is required.

As Cooper has observed, there are many factors of a practical nature involved in deciding how to go about eliciting appropriate language performance:

> " The particular operations which are chosen for the test will depend in part on their suitability for examinees at a given age and at a given level of English proficiency, in part on the difficulty of writing items to embody such operations, and in part by the limitations imposed by time and money." (Cooper, 1972, p. 338)

The particular linguistic or contextual content of tasks should also be considered. In other words, teachers must decide whether a given item type actually will test the aspect of functional language ability in question. At the same time, it must also be borne in mind that "...just as an item could test for more than one objective..., so one objective...can be tested by more than one item and by more than one item type...(Cohen, 1980, p.7)". The fact that there are many more items through which it is possible to measure any one feature of communicative performance reveals, therefore, that the problem of specifying testing operations is essentially one of adequate sampling. At present, the selection of the number of test items used to evaluate a given objective, as well as the point worth of each item or set of items, is established on the basis of the importance of the objective in terms of the entire course programme, and hence the amount of time and effort dedicated to this objective throughout instruction.

Because students are mainly required to handle difficult conceptual material written in English and related to their specific subject areas,[10] a typical test of reading comprehension is centered around a reading passage similar in thematic and linguistic content to those the students have been dealing with in their normal class sessions. The length and degree of complexity (both conceptual and logico-linguistic) also reflect the types of texts students are accustomed to handling in the ESP courses for their specific subject areas.[11] But, despite the existence of "core" objectives at the more general level, many more specific objectives are peculiar to each ESP course. Even in cases where objectives are actually shared, there may be variations in the way they are focused. Any such variations are naturally reflected in the adoption of different approaches to testing achievement of these objectives. In view of these differing degrees of emphasis accorded to the teaching and testing of many objectives, in conjunction with the existence of a wide range of item types which teachers can draw upon when developing testing instruments, one-to-one comparisons would be unnecessary and perhaps even impractical. Certain common tendencies are nonetheless discernible.

As a group, the members of the ESP section share the belief that:

> "...a reading test should (not) have very many straight vocabulary items, items which test only the dictionary definition of a word and so could be answered without reading the passage at all. Vocabulary items should test the meanings of words in a particular context." (Pimsleur, 1966, p.221)

Students are therefore required to guess the meaning of unknown words from the context in which they appear. Likewise, it is considered that items should test the student's knowledge of how English is _used_ for a particular purpose in the reading passage. For this reason, test items seek to elicit comprehension of notional, propositional, contextual and pragmatic meaning (cf. Cohen's definitions of these terms in 2.4). The student is not therefore required to demonstrate a knowledge of English _usage_ (grammatical or lexical). Instead, syntax and lexis are tested only in so far as they are necessary for determining comprehension of the different layers of meaning in text mentioned above.

3.4. Typical Item Types and Scoring Formats

Within these shared criteria of a very general kind, teachers of ESP courses adopt a number of item types in accordance with the requirements of each course. Owing to the limited time available for test construction--and the undesirability of spending long periods of time correcting frequent quizzes and tests--objective scoring formats are preferred over more subjective types, although the latter may be used occasionally for evaluating projects and oral presentations. Moreover, as Carroll has noted, the aims of reading comprehension would appear to be best served by the closed-ended or restricted-response formats, such as, fill-in-the-blanks, True-False, or matching. We have also found that these formats lend themselves well to testing both minimum essential and maximum development objectives. Multiple-choice items are also used for testing objectives at both the "enabling" and the "developmental" levels. On occasion, the inclusion of indirect integrative items (such as, cloze paragraphs, cloze dictation and diagram completion) is prompted by the desire to impart a greater measure of authenticity to our tests. Unrestricted cloze items are never utilized since they are better suited to testing proficiency than achievement. Rather, whenever possible, cloze items are constructed which serve to summarize information presented in the test reading passage. In order to facilitate scoring objectivity, a list of words or expressions which have been deleted is supplied. Such a list may include the exact number of words deleted, or the exact number supplemented by a distractor for each one, or simply several other words or expressions aimed at diminishing the possibility of answering later questions by a simple process of elimination. Generally, the process of test writing culminates in having other teachers proof-read the items and their accompanying instructions. If necessary, corrections are made previous to printing and administration of the tests.

3.5. An Eclectic Approach to Testing

All things considered, the current approach to testing in ESP courses at the USB is indeed an eclectic one. Two main factors have been influential in bringing this about:

1. the lack of any established, clearly defined methodology for testing functional language ability; and

2. the present limitations of linguistic science amd its consequent inability to draw up a conclusive list of every kind of behaviour necessary for adequate communicative performance.[12]

In spite of these limitations, we are still of the opinion that since we have access to information regarding the purposes for which the student needs English, it is possible when testing to concentrate on those key aspects--such as, reading skills and specialized terminology--percieved as most relevant in a given ESP course. In this way, comprehension of notional, propositional, contextual or pragmatic meaning can be tested to the extent that this is indicated by the needs assessment and corresponding course objectives.

At present the ESP courses are still at the pilot stage and the testing component--perhaps due to its sequencing in the overall scheme of curriculum design--is no exception. Since course materials and methodologies are now going through the inevitable trial-and-error process, teachers are understandably not yet in a position to construct definitive testing instruments. Nevertheless, even these interim tests and quizzes are subject to some degree of evaluation. On the basis of the level of performance of the class or of individual students, in addition to feedback obtained from a questionnaire, tests are evaluated, for the time being informally, with respect to the following criteria (adapted from Cohen 1980):

1. Clarity of instructions to the students
2. Appropriateness of time allotted

3. Degree of student interest in the tasks
4. Relationship perceived between the test items and course objectives and materials
5. Level of difficulty of items (since these are achievement and not proficiency tests, an "easy" item tends to be considered a good one; a bad item--one that a majority of students, including the better ones, answered incorrectly--would be interpreted as indicative of flaws in teaching or learning strategies or, possibly, in the test item itself)
6. Appropriateness of scoring procedures and weighting
7. Ease of interpretation of the test scores
8. Extent to which the test measures what it was intended to measure.

The fact that current testing methods have been relatively successful, from both the students' and the teachers' points of view, can probably be attributed to the close connection maintained between teaching objectives and materials, on the one hand, and testing objectives, on the other. We are, nevertheless, aware of the need to formulate a perhaps no less eclectic, but certainly a more systematized, approach to testing. Only then could test results seriously be considered as a valid endorsement or criticism of the instructional process and its outcome in ESP courses.

4. Conclusions: Toward a Systematized Approach to Testing in ESP Courses

In the interest of greater clarity, the table below summarizes the information presented in Part 3 of this paper. The components of test items generally used for testing reading and listening comprehension in ESP courses at the USB are classified following the distinctive-element approach proposed by Cohen (1980).

Table 1. General Characteristics of Test Items in ESP Courses at the USB

ITEM-STIMULUS FORMAT	1) Written stimulus (usually passage stimulus, paragraph or sentence stimulus being more rarely used) 2) Combined oral and non-verbal stimuli (e.g. videotapes, slides, photographs, diagrams--either with or without accompanying oral texts
ITEM-RESPONSE FORMAT	1) Written response (usually of the structured, short-answer kind (e.g. matching, ordering, completion--of diagrams, tables, sentences or paragraphs--, true-false, fill-in-the-blanks, translation of short phrases, multiple-choice, etc.) 2) Oral response (e.g. reporting--this response format may also be used in ordinary class sessions, although not on more formal testing occasions
TESTED RESPONSE BEHAVIOUR	Accuracy, speed and quantity determined by: 1) Specifications in course objectives 2) Degree of emphasis placed on testing certain objectives in relation to others 3) Student capabilities and general knowledge of English 4) Limitations of specific item-stimulus and item response formats

The reader wishing to obtain a more specific idea of the forms taken by the item types summarized in the preceding table should refer to the Appendix, where a sample of test items from each ESP course is presented.

On the surface, the above tabular synthesis of test items would appear to indicate a considerable degree of homogeneity among testing methods utilized in ESP courses at the USB. Were we merely to limit our observations to the level of synthesis, this conclusion might probably be acceptable. A more analytical approach, however, might well reveal that, in the event that any such homogeneity did exist, it was essentially fortuitous. For although the ESP courses possess certain "core" objectives derived from a common theory of language and language teaching, this does not necessarily imply that homogeneity in testing methods and instruments will automatically come about. In fact, the circumstances under which tests have had to be developed, that is, at the tail-end of an ongoing process of course design and materials production--simultaneous with teaching--for ESP courses at the pilot stage, has tended to militate against the formulation of a coherent "policy" for testing in these courses.

A look at actual tests, complemented by interviews with the teachers who designed and wrote them, does confirm the existence of a tacit, albeit fortuitous, agreement as to the purpose of tests and the most appropriate form they should take. Nevertheless, such uncoordinated efforts are neither adequate nor desirable, especially when seen in the light of our ultimate goal of establishing a systematized approach to the design and teaching of ESP courses at the USB. In short, shared viewpoints do exist, but participants in the project feel that these should be translated into a coherent methodology which could be commonly applicable to test development in our specific teaching situations at the USB. Clearly, any methodology proposed would have to be comprehensive enough to constitute a viable framework for test development in ESP courses covering six different specialty areas, and yet not so ample that it defeated its very purpose.

Fortunately, the task of elaborating a suitable methodology is facilitated by common agreement as to the focus and objectives of ESP courses. There is also uniformity with regard to the purpose of testing: tests are used as a means of determining student achievement of course objectives; to identify student strengths and weaknesses with regard to specific points; to help in assigning a final grade to each student; and to provide feedback for revising course design and teaching strategies, as well as the tests themselves. It is the area of the actual specification of test content that now requires clear, well-defined guidelines which are based on sound theoretical principles. In order to meet these requirements, the process of establishing a common methodology for test development could be divided into six (6) stages as follows:

1. The organization of an internal seminar to serve as a forum for ESP teachers to carry out a critical analysis of certain key concepts in testing on the whole, and more particularly, in testing functional language ability, having as their objective the identification of those aspects which could be adopted unanimously by the group as a viable framework within which to carry out test development and evaluation;

2. Assuming that the internal seminar confirms and strengthens the current tendencies for testing in ESP courses as described in Part 3, participants would then familiarize themselves with the criteria and recom-

mended procedures for elaborating tables of specification (as in Gronlund or Bloom, for example), and acquire practice in making such tables themselves;

3. Subsequently, tables of specification drawn up as the basis of defining test content for each ESP course would be submitted to group discussion and criticism;

4. Then, taking into account the framework agreed upon in Stage 1, and the course-specific tables of specification drawn up in Stage 3, participants would develop testing materials for particular units or modules of their courses;

5. The resulting tests would be given to the students and information obtained from them would be processed and utilized according to the purposes of tests previously stated (cf. foregoing page);

6. Finally, tests would be revised and modified if this were indicated by the results of Stage 5.

In this way, we might aspire to produce tests which at least approximate the ideal of carrying out a rigorous measurement of language-based ability while maintaining the integrity of the essential features of communicative behaviour. As language teachers, our ultimate goal is the creation of testing instruments which truly reflect our pedagodical aims.

NOTE: The sample items from each ESP course given in the following Appendix are based on corresponding reading texts, unless otherwise indicated. Some items used for testing listening comprehension have also been included.

APPENDIX

ARCHITECTURE

- Multiple Choice

In architectural design all of the three main elements assist each other in providing a coherent and efficient plan.

a. aid b. attend c. negate d. follow

An architectural drawing is nothing more than a representation of what the architect hopes will become an actual building.

a. present b. current c. up to date d. real

The architect does not first plan a building for convenience, and then for construction and aesthetic effect.

a. therefore b. next c. in addition d. more than

One essential prerequisite for the student of architecture, then, is an ability to draw.

a. in addition b. at present c. therefore d. at that time

Circle the correct alternative to indicate how the following connectives are used in the text.

--irrespective of (Par. 1, line 6):

a) purpose b) comparison c) exclusion d) reason

Label the following sentences by selecting from the list provided the language function which you consider most outstanding in each one.

____ Beauty either resides in, or is caused by, the form itself or the perception of it.

____ The first great class of aesthetic theories comprises those which consider beauty as the primary result of special formal relationships.

____ This concept is of special importance because Schopenhauer sees the expression of structure as basic in architectural beauty.

A. result B. comparison C. classification

D. cause-effect E. process F. reason

Which of the following are not anthropometric units of measurement?

a. the meter b. the hand c. the cubit d. the mile e. the foot

---

Which of the following ideas is NOT expressed in the text?

a. We use psychological references in order to measure time and space.
b. It is easier to perceive a pattern of alternation when the time involved is considerable.
c. The eloquent use of legato rhythms demands very acute judgment and sensitivity on the designer's part.
d. A complete enjoyment of architecture involves the intuitive measuring of space over a certain period of time.

The perceived closeness or remoteness of the buildings in an architectural complex basically depends on ________________.

a. the relation of the architectural complex as a whole to its surroundings
b. the space existing between the various buildings of the complex
c. the geometrical calculation of the distance within the buildings
d. the complexity of the design of the buildings themselves

The statement "...Optimal distances can be measured, but here again the rules governing the phenomenon are not likely to be simple" implies that ____________________.

a. the measurement of optimal distances is a uniquely difficult task
b. due to the complexity of the rules governing this phenomenon, it is impossible to measure optimal distances
c. it is just as difficult to measure optimal distances as to hypothesize about ideal spatial arrangements
d. it is easier to evaluate the distances between buildings than to measure optimal distances

---

The purpose of this reading is to _____________.

a. teach the layman how to go about measuring and judging scale
b. explain why we feel uncomfortable when a percept does not conform to our expectations
c. show how scale is determined using both subjective and objective criteria
d. explain how the designer creates the expectation of size in a building

- Matching

****

Match each word in Column A with a definition from Column B which corresponds to how the word is used in the text.

A

___1. coalesce (line 3)
___2. appendage (line 4)
___3. display (line 9)
___4. proper (line 14)
___5. strains (line 18)
___6. overlay (line 31)
___7. juggle (line 34)
___8. other than (line 37)

B

a. manifest, show
b. apart from
c. vary, change
d. influence
e. addition, extension
f. merge, blend
g. tensions
h. well-behaved, polite
i. in addition to
j. manifestation
k. suitable
l. species, type

****

Match the concepts taken from the texts we have read during the trimestre with the corresponding paragraphs. *Put the letter of the paragraph next to the number of the concept.

CONCEPTS

... *(Cont'd)*

___4. Apart from the energy that pervades it,...space cannot be said to exist physically.

___5. There has emerged a way of building whose spatial characteristics are marked by openness rather than enclosure...: a kind of architecture, new in Western history, in which one often has the feeling of being inside and outside at the same time.

PARAGRAPHS

D. If architects are to continue to do useful work on this planet, then surely their proper concern must be the creation of place--the ordered imposition of man's self on specific locations across the face of the earth. To make a place is to make a domain that helps people know where they are, and, by extension, know who they are.

E. Architects can form a concept of the total spatial structure of a building from the plans and sections, just as a musician reads a score. The concept arising from the plans, however, is but a weak substitute for the real thing: it lacks scale, the color and texture of the materials, the effects of natural and artificial lighting, and, above all, the ambiental qualities of the building itself.

- True or False

T--F A good architect will think of design first in terms of use, then in terms of construction, and finally in terms of aesthetic effect.

T--F Our urge to experiment with distances between objects stems from our perception of complementary forces.

T--F Because the distances between objects are perceived as a reality, and not as dead, empty spaces, we are able to make judgements about distance.

- Ordering

"Something extraordinary happened which caused the manor house and its way of life to change." Put the following list of events in order according to what happened first.

_____ a. the cold climate moved south
_____ b. sun spots and/or
_____ c. the food supply was affected
_____ d. volcanic activity
_____ e. there were icebergs in the Atlantic
_____ f. fertile land froze solid
_____ g. weather got colder in the Arctic Circle
_____ h. it was too cold to stay alive in winter

- Information Questions

In what way(s) are the activities of the designer and the observer:
a) alike?
b) different?

What effect is obtained :
a) by moving two buildings further apart?
b) by moving them closer together?

- Completion

"Paper architecture" may be defined as ______________________________.

When we see a building for the first time we are faced with the problem of determining its identity, its ____________ from us, and its ________.

Two types of rhythm mentioned in the first paragraph are ______________.

Measuring and ______________ are similar in that both involve _________ ____________________________________.

A contradiction of the size expectancy established at any given point results in _________________ because we experience a building as a __________________________________.

One can say that the space between buildings is empty if ______________.

The designer's plan does not constitute a work of architecture until_______.

Claustrophobia and standing on top of a mountain or inside some great building are examples of ______________________________________.

The music analogy is used to illustrate ____________________________.

The author's purpose in writing this article is to ___________________.

Use the words in the list provided to complete the following paragraph. The completed paragraph should summarize the main points of the text. Use each word or phrase only once. Every word corresponds to a blank.

______________, aesthetic theories of architecture may be ______________ into ______________ main ______________: those which ______________ of beauty as a ______________ of the way in which ______________ are perceived and ______________ which consider that the beauty of an ______________ structure ______________ its ability to ______________ certain values or ______________. For the ______________, critics belonging to the ______________ class, the sense of beauty is essentially autonomous ______________ it is ______________ to meaning or other ______________ conceptions, ______________ the expressionist ______________ sustains that beauty is ______________ on expression.

point of view
forms
functions
conceive
two

express
dependent
consequence
formalists
lies in

divided
those
architectural
basically
unrelated

first
categories
irrelevant
since
while

- Open-ended (Restricted)

Draw (sketch) examples of the two types of rhythm correspondences mentioned in paragraph 4.

Throughout the reading, the author discusses the key concept of "expectancy" or "expectation". Cite an example given by the author which illustrates our ability to modify our expectations or to justify their unfulfilment:

BIOLOGY

- Multiple Choice

Water is carried to the farthest leaf of the plant by means of __________.

a. capillary action b. molecule suction c. atmospheric pressure

- Matching

Match the items from column A with the items contained in column B and C :

A	B (SYNONYMS)	C (FUNCTIONS)
1. since (par.4, line 3)	however	cause-effect
2. so (par.4, line 7)	furthermore	additional information
3. even though (par.6, line 3)	because	consequence
4. moreover (par.6, line 6)	as a result	contrast
5. nonetheless (par.17, line 12)	in spite of	definition

Match the ideas in column (A) with the words appearing in column (B)

A	B
a. environmental factors acting on an organism	herd
b. male clasped to female bullfrog	fouling
c. female manatee	barrenness
d. lack of fertility	gregarious
e. living in groups or societies	estrus
f. feeding relationships	brine
g. Dead Sea	amplexus
h. a group of manatees	niche space
i. marine incrustrations on platforms	mechanoreception
j. acoustic communication	food web

- True or False

Most hermit crabs engage in lengthy courtships, while in coconut crabs mating is a quick, simple and infrequent event.

Honeybees prefer the alfalfa flowers because they come equipped with a large amount of nectar.

The faster the production of thyroxine the slower the rate of metabolism.

The wing basal area is the least melanic and stiff-chair covered part of the wing, therefore it is this area that gives wings their thermoregulatory properties.

- Selection

Check (-) the terms defined in the film.

semilunar valve
artificial heart valve
blood
pump
heart-lung machine
veins
coronary arteries
oxygene
nutrients
middle layer
flow
hardening of the arteries
CO_2
lung

- Ordering

Put the following in the order in which they appear in the passage.

- the function of insulin
- the result of iodine deficiency
- the effects of removal of the pituitary gland
- the process leading to loss of body weight
- the function of hormones
- the function of the endocrine

- Information Questions

Why is interferon called a "wonder drug" ? ___________________

When will scientists be able to explain the weird spread of cancer cells ?

What must be done before considering the new discovery a complete success ?

What role does the gut play in the spreading of the disease ?

What is the difference between glucagon and cholecystokinin ?

Are researchers convinced that one day in the future they will be able to imitate the photosynthesis process ? Give a reason for your answer .

The first reason for mapping human genes, is a fact or a hypothesis? Underline the linguistic clues to justify your answer.

Which is the sentence or sentences in paragraph (2) that embody the explanation of "the mechanism of differentiation? Write the beginning and the end.

What is the function of the last sentence in paragraph (2)? ___________

Which paragraph would you consider to contain a brief summary of the article ?

N°= ___________________

- **Completion**

Chloroplasts contain ____________ and these are composed of ____________ ____________.

The function of the cell nucleus is ________________________ ________________________.

The bending of the stem is caused by ____________ a naturally produced plant hormone.

Fill in the blanks using the words in the cloud.

When the valve is deffective and therefore it can not control the flow of blood, we have a ____________.

____________ are vessels that supply the heart with food and nutrients and penetrate through its muscle wall.

____________ is a strong pain caused when the total blood supply to the heart is not sufficient.

The lower parts of the heart are called ____________.

____________ are one cell thick vessels that permit O_2 and nutrients to diffuse through the cells.

A blood clot in the brain causes a ____________.

stroke clot angina capillaries gangrene
ventricles closed system heart murmur atria
coronary arteries

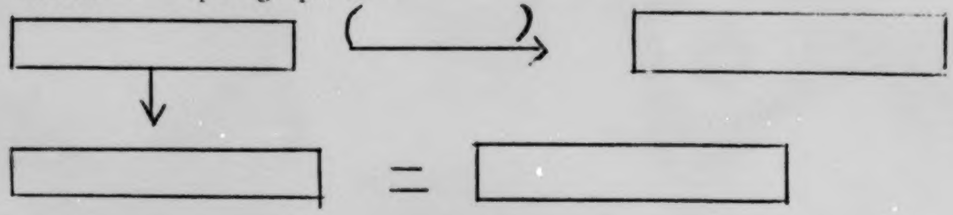
Find in the text a synonym for the following connectives (look for them in paragraphs 4, 5, 7, 9).

a. that is : ____________ b. while : ____________

c. even if : ____________ d. for example : ____________

e. since : ____________ f. nevertheless : ____________

Complete the following diagram using the information contained in the last 2 sentences of paragraph #10.



COMPLETE THE FOLLOWING OUTLINE BY RETRIEVING INFORMATION FROM THE READING "THE HUMMINGBIRD AND THE CALORIE ".
BE BRIEF AND CONCISE.

Birds' general characteristics.

A. Hummindbirds' concerns

these factors induce them to : ____________

____

____

in order to : ____________

____

____

B. _ _ _ _ _ _

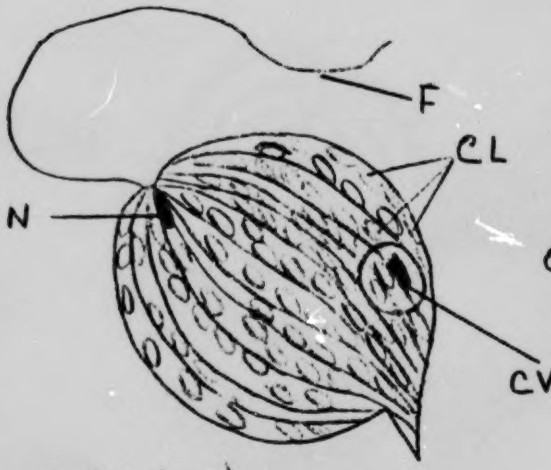
_ _ _ _ _ _

hummingbirds without territory

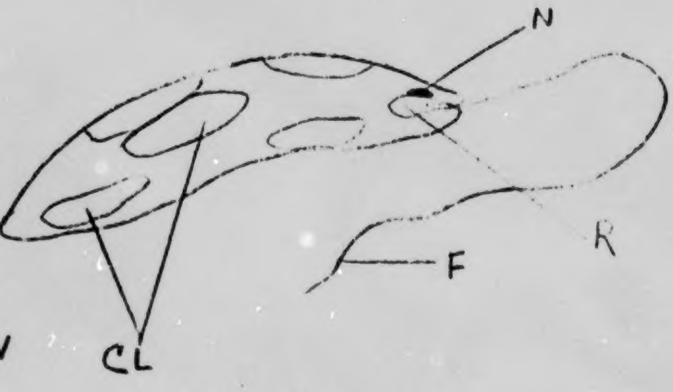
c. Defense of Territory

- **Open-ended (Restricted)**

DESCRIBE BRIEFLY THE DIFFERENCES AND SIMILARITIES BETWEEN THESE TWO ORGANISMS.



(65 μ)



(45 μ)

Describe the cholera organism.

Reason out the results of the experiment. Draw conclusions from the results.

Indicate the four topic sentences present in the text between paragraphs 4 and 9 by writing only the first two words and the last two of each sentence.

PROVIDE A BRIEF DEFINITION FOR THE FOLLOWING TERMS.

hive :

forager :

thermogenesis :

molt :

COMPUTER SCIENCE

- Multiple Choice

Which of these components is usually contained in the CPU?
_____arithmetic-logic unit
_____output
_____auxiliary storage
_____none of the above

Which of the following statements describes a keyboard terminal?
_____it may be used only as an input device.
_____it may be connected to a computer system by a telephone line.
_____both
_____neither.

Which of these statements is true?
_____the storage unit controls the operation of the computer system.
_____the supervisor is a program that controls the operation of the computer system.
_____the storage unit contains the program being used by the computer system and i/o data for that program.
_____all of the above.

One of the problems of telecommuting would be:
a. employee turnover
b. gasoline waste
c. people working without supervision
d. people with physical defects.

The term "compunications"
a. is used to emphasize the influence that computers have had on the area of communications.
b. was first used by science-fiction writers.
c. describes the link that exists between computers and communication.
d. was established i- order to use it in coins as exchange items.

The purpose of the "Dow Jones, the publisher of the..." (page 118 - first column, paragraph 3 under "two-way mini-radio...) is to:
a. add new information about microwaves.
b. emphasize the disadvatages of satellites.
c. support the idea that satellites can be more economical.
d. reinforce the idea that satellites and microwaves can be combined.

- Matching

Match the following:

_____fastest access time

_____slowest access time

(a) magnetic disk
(b) magnetic drum
(c) magnetic tape
(d) data cell

Match the following:

_____storage unit

_____arithmetic-logic unit

_____control unit

(a) performs required operations on data
(b) common link between all devices in a computer system
(c) interprets instructions
(d) issues commands

- Completion

Instructions to the computer system are interpreted by the ______________ and then issued as commands to other components.

The new generation of communication includes the combination of ____________ and _________________________.

One of the advantages of the voice-recognition units developed by Westinghouse and Exxon and described in paragraph 8 is the fact that the incoming telephone calls would be answered by a ___________ instead of a ______________ .

Using the information from the reading, complete the following Table:

COMPUNICATIONS DEVELOPMENTS AND DEVICES	ALREADY IN USE	WILL BE USED IN NEAR FUTURE	MAY BE USED IN FAR FUTURE

- Information Questions

What two types of information are placed in storage by the input component?
________________________ and __________________________.

From which component(s) does the arithmetic-logic unit obtain data to operate on?
____.

How could telecommuting "make traditional offices obsolete"? (be specific and brief)

- Open-ended (Restricted)

Write one similarity and one difference between cables or microwaves and satellites.

Compare advantages and disadvantages of punched cards and magnetic tapes. Consider: record length, storage capacity, type of processing and speed.

Choose five verbs followed by prepositions and apply them in computer-related situations:

switch through, remove from, break down into, be connected to, be impressed with, leave for, correct in.

ELECTRONIC ENGINEERING

- Multiple Choice

Choose the correct option to complete the meaning of each of the sentences below.

_ _ _ _ _ _ _ _ there is no clear dividing line between conducters and insulators, it is very useful to make a distinction between them.

a. However b. So that c. Although

Which of the following is problably cheapest (least expensive) : _ _ _ _ _ _ _ _

A. Intel 8048
B. " 8748
C. " 8049
D. " 8021

Which of the following works at a faster rate :

a. discrete bipolar integrated circuits
b. 16 bit general purpose microprocessor devices

Random access memory devices are most often used for :

a. personal computers
b. general purpose microcomputers
c. dedicated tasks
d. reprogramming

- Matching

Read this description :

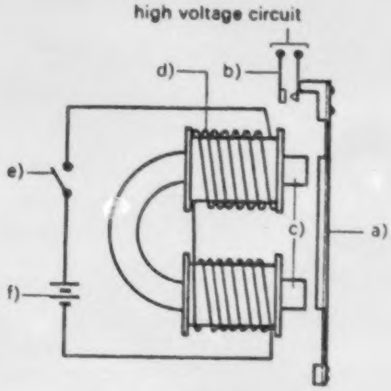
A relay is a switching device for opening and closing one or more electrical circuits on receipt of an electrical signal.

A simple kind of relay consists of two parts, a switch in a high voltage Circuit which is operated by a spring loaded armature and a low voltage **electro-magnetic** circuit.

The electro-magnet comprises a soft iron core shaped lie a horseshoe.Each arm of the core has a coil wound around it. The coils are connected to each other and to a battery through an on/off switch.

When the switch is closed, the electro-magnet is energised,and the armature is attracted towards it. This closes **the contacts** and enables the current to flow through the high voltage circuit. When the switch is opened, a spring pulls the armature away from the magnet, and the contacts open again.

Now match the letters with the parts of a relay;



Relay

extracted from: Nucleus Engineering. (Dudley-Evans, Smart and Wall, 1978), p. 43.

a. ________________
b. ________________
c. ________________
d. ________________
e. ________________
f. ________________

- Completion

Study the following paragraph and fill in the blanks with the appropriate words :

"The resistance of a conductor decreases when the cross-sectional area _ _ _ _.
Thus, the _ _ _ _ _ _ _ the cross-sectional area, the _ _ _ _ _ _ _
the resistance. In other words, the resistance in invesely proportional to the
cross-sectional area."

"As we raise the anode voltage, anode current increases."
Restate the above sentence by filling in the blanks with the correct expressions :
The _ _ _ _ _ _ the anode voltage, the _ _ _ _ _ anode current.

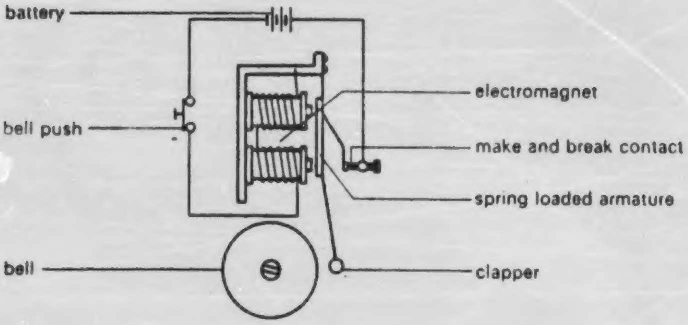
A synonym for "throughput" would be (p. 13, par.2) _ _ _ _ _ _ _ _ _ _

"Plug into" (p.14, par.3) means _ _ _ _ _ _ _ _ _ _ _ _ _
_ _.

"These resources" (p.12, col.2, 1.5) refers to _ _ _ _ _ _ _ _ _ _ _
_ _

FUNCTIONING OF AN APPARATUS:

Look at this diagram:



Electric bell and circuit

Now complete this text using a word from the columns A, B, C when indicated:

A	B	C
through	when	stops
back to	until	starts
towards	then	continues
away from	at the same time	consists of

An electric bell circuit ____ a battery, a bell and a bell push connected as shown in the diagram. ____ the bell push is closed, the current flows ____ the electromagnet and a magnetic field is created. The armature is ____ attracted ____ the electromagnet and the bell ____ to ring.

____ the make and break contact is opened, and this ____ the flow of current ____ the electromagnet. The magnetic force ____ acting and the spring pulls the armature ____ its initial position. ____ the make and break contact closes, the current flows and the cycle ____ again. The current ____ to flow ____ the bell push is released.

Extracted from: Nucleus, Engineering
Dudley-Evans, Smart and
Wall, 1978), p. 54.

The three necessary components for assembling and integrating a custom micro-computer system are : a. ____________________________________

b. ____________________________________

c. ____________________________________

When making the choice of what family of microprocessors to buy, there are two major decisions to be made. One is choosing the CPU, and the other is ____________________________________.

Intel's 8085 is an example of ____________________________________

- **Open-ended (Restricted)**

Give examples of where you could apply single-chip microcomputers. ____________________________________

Compare and contrast :

ROM ____________________________________

EPROM ____________________________________

RAM ____________________________________

- Information Questions

What is the meaning of "expertise" (pg.11, par.1) ____________

____

What is "bus" (p.14, col.2, par.2, line 2) ____________

____

What are the two verbs in the sentence on p. 14, last par., first sentence ?

____

____

Why were "Standard building blocks" developed ?

- Translation

Translate the following paragraph :

" A body with a considerable excess of electrons has a strong negative charge ; one with few electrons has a strong positive charge. Thus, there is a difference of potential which exists so long as there is no means of electrons escaping or nuclei gaining the electrons they lack."

- **Multiple Choice**

Which of the following words represent exact numbers?

a. a dozen	d. a couple
b. a quarter	e. a lot
c. most	f. a week

Which of the following communicative functions is used here:

a) instructions

b) classification

c) exemplification

d) cause and effect

e) process

Which of the following scientific areas were not developed during the Renaissance?

a. logarithms
b. technique of solving equations
c. complex numbers
d. mathematical notation
e. the use of the abacus

Which of the following were consequences of the development of machines in the XVII-th century?

a. the study of trigonometric tables
b. the study of the quadrature of the circle
c. the study of motion
d. the study of change in general
e. the study of theoretical mechanics

What was a similar conclusion of both Platonists and Cartesians?

a. That there was a harmony in Universe.
b. That lines were originated by the motion of points.
c. That there was a general method of thinking based on reason.
d. That mathematics was the Queen of Sciences.
e. That it was not convenient touse negative values for coordinates.

- Matching

Join the matching words or phrases

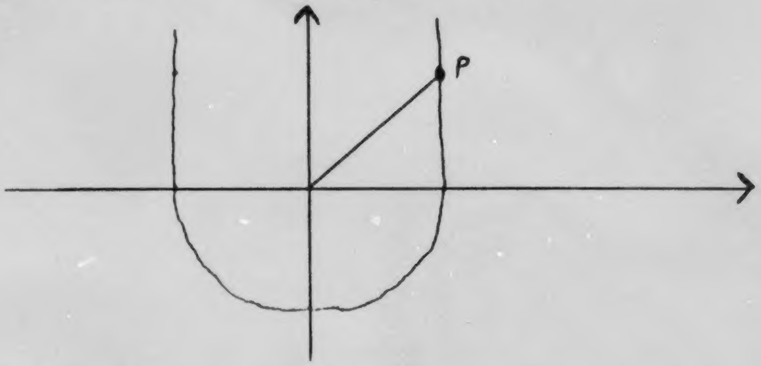
1. statistics
2. arithmetic
3. solid geometry
4. fractions
5. music
6. trigonometry
7. algebra
8. multiplication
9. differential calculus
10. calculus
11. plane geometry
12. whole number

a. formulae
b. harmony
c. triangle
d. decimal point
e. functions
f. rate of change of functions
g. product
h. line
i. integer
j. piramid
k. subtraction
l. probability

Please locate the following names on the drawing:

abscissa - ordinate - quadrants - axes - intercepts (x,y)

origin - radius vector - coordinate system



Give a numerical example to illustrate each of the following concepts:
(give a simple example)

a. an unending number
b. the absolute value of a number
c. a column of numbers
d. to 'borrow a number'
e. a factor
f. to round up
g. a fraction
h. to bring down a digit
i. the remainder (division)
j. a quotient
k. a grand total
l. a difference

- Completion

Expressions consisting of more than three terms are called __________ .

In an algebraic formula, a combination of symbols representing numbers is called an ____________________.

When we locate a point's position from the values of 'x' and 'y', we say that we ________________ the point.

The lowest common denominator (LCD) is used to ______________________ __________________ .

- Information Questions

What was the Almagest?

What was Man's attitude toward Mathematics ...

a)...during the early history of Greece?
b)...during the Golden Age of Greece?
c)...during Hellenism?
d)...during the Roman Empire?

What was the difference between "Arithmetica" and "Logistics"?

What part of sentence (1) does sentence (2) explain?

How many cases of mathematical activity are mentioned in this paragraph? Could you please enumerate them?

Which sentences contain opinions of the author of the book?

Which sentences contain definitions, and of what?

Which sentences contain applications of the discoveries?

Why are Leibniz, the Bernoulli brothers and Huygens mentioned together in this paragraph?

Why does the author use "was closely related" (past tense) and then "is often considered" (present tense) in sentence (1)?

- Ordering

Order chronologically the names of the following mathematicians:
Eudoxus - Pithagoras - Thales - Hippocrates - Euclid - Zeno

- Translation

Write out the following expressions with words:

$$\frac{a + b}{a - b} = \frac{(a + b)^2}{a^2 - b^2}$$

$$(\sqrt[q]{a})^p = (a^{\frac{1}{q}})^p = a^{\frac{p}{q}}$$

- Combination (Translation & Dictation)

Listening Comprehension - Write down the numbers that your teacher will dictate to you, (a) with numerals, (b) with letters.

URBANISM

- Multiple Choice

"Pinpoint" as used in the last sentence of paragraph two is similar to:

a. become visible   b. highlight   c. show up with   d. realize

---

The expression "But wait", as used in the 7th. sentence of paragraph 1, implies

a. reinforcement   b. contrast   c. addition
d. rewording   e. similarity

In the last sentence of the second paragraph, we can find the following phrase: "victim of its own colorful success". "Its", as used here, refers to:

a. the waterfront
b. the fishing industry
c. the wax museums
d. the restaurants

According to the last paragraph, S.F. is different from other American cities in that

a. San Franciscans spend money to beautify the main streets of their city.
b. Downtown S.F. has kept its importance for being the center of activities.

The evolution of the first cities in the valleys of the Tigris and Euphrates was possible

a. due to the existence of adequate water supply and fertile soil.
b. because the area offered the possibility of exchanging knowledge among several cultures as well as favorable living conditions.
c. because several cultures and tribes mixed for thousand of years.
d. both a and c

According to the author, which of the following is an implication from the example given in this paragraph?

a. there will be more places to go shopping
b. population density will decrease
c. there will be more uniformity in the buildings
d. more people will come to the area in order to do their errands

Looking at the cases described in the text, the people mostly favored by the in-kind program have been (choose the ones mentioned in the article):

a. part-time students
b. divorced women
c. people bearing physical defects
d. people possessing old houses.
e. old people
f. juvenile delinquents

Select from the following list, the word(s) related to the main idea of the first paragraph.

a. each dot
b. pointillist paintings
c. landscape
d. light-colored
e. nothing special
f. buildings
g. uniform units
h. closely-knit
i. each point

The first sentence of this paragraph:

i) introduces a new point in the development of the article
ii) summarizes the information of the previous paragraph
iii) presents some additional information to complete what has been said so far.

In the fourth paragraph the author includes several criticisms of large projects being built in S.F. today. From the list given below, check the ones mentioned by him.

a. too small scaled for S.F.
b. built without sensitivity
c. too large for S.F.
d. alien to S.F.'s nature
e. owned by many people
f. singly owned

FACT OR OPINION (If opinion, whose is it?)

______________ a. The city of Hartford seems to want its residents to keep their homes even though they owe tax money.

______________ b. The people that have a debt due to taxes can be very useful to the city.

______________ c. Mary Haley is 41 years old and untrained.

______________ d. The city generally gets most of its money from taxes on land property.

Is the information contained in this paragraph

a. completely proven or
b. hypothetical ?

GIVE REASONS FOR YOUR ANSWER (you may use Spanish if you want)

- Matching

Look at the following words in context and match them with the synonyms on the right:

Line	Word in Context	Synonym
22	therefore	1. in addition to
46	shift	2. boundary areas
47	outskirts	3. hence
48	although	4. domain
78	thus	5. even if
98	realm	6. nevertheless
98	moreover	7. in contrast
116	linked	8. connected with
49	rise	9. emergence
115	however	10. increase
		11. movement

Match the words contained in column (A) with the words in column (B). You may do this exercise by going superficially through the reading.

A	B
Fertile Crescent	1. Ur
crossroads	2. urban life
silt of the delta	3. gems and precious metals
written tradition	4. Tigris and Euphrates
merchant-traders	5. communication among cultures
literacy	6. more rigorous systems of thought
Sir Leonard Wooley	7. early Egyptian urban life

- Completion

In Hartford, people can pay their taxes to the city either with__________ or, if eligible for the in-kind program, with______________.

The term used to define a person who owes the city taxes is___________ and the property is said to be______________if the taxes have not been paid.

In this paragraph, the author makes allusion to the differences between the____and the____in order to better understand the current process of urbanization in the under-developed countries.

According to the author, in the development of urban life, writing has been the major cause of:

a/

b/

c/

Fill in the blanks using the words in the box.

a. With the data in this paragraph, the author wishes to make a__________ between the____________________in cities of advanced nations and cities of_______________________. In this way he_________________the main point he has made throughout the___________________.

/defines/ /Africa/ /non-industrial countries/ /Australia/
/third paragraph/ /increase in density of population/ /distinction/
/illustrates/ /economic growth/ /classification/ /article/
/growth of urban population/

Fill in the blanks using the information given in the paragraph:

For cities to develop,__________________,_________________________ and__________________were necessary factors. Because cities promoted innovations,______________________took place, and these could be further developed on the basis of an____________________, especially the one regarding the__________________________.

Of the words underlined in the text, write in Column A the words used to express the function of cause-effect; in Column B write the words that indicate the cause and in Column C write the words that point out the result or effect.

COLUMN A	COLUMN B	COLUMN C

- **Information Questions**

Fill-in the diagram below using the information provided in the first extract.

SAN FRANCISCO'S DOWNTOWN
Viewed From

The __________ or East Bay
man-made _______
Characteristics: ____________,
______________ in ___________.

The ____________
__________ blocks
Characteristics: _____________,
_____________, _____________ .

- **Information Questions**

Why are changes in San Francisco's downtown so noticeable ?

Please look at paragraph three, sentences three (3) and four (4). What is the relationship between sentences three and four?

In sentence six (6) of paragraph three, "everyone" is used twice. Does it refer both times to the same people? Why or why not?

Is the author's opinion of S.F. a positive or a negative one? Write down three explicit markers to support your answer.

What are the two elements being contrasted?

______________________________ vs. ______________________________

Write down the words used to express the function of contrast

____

Which are the criteria for such contrast?

a. ______________________________

b. ______________________________

NOTES

1. The formative evaluation of the ESP courses taught at the USB is dealt with in Alfonso (1981).

2. Gage and Berliner (1979) define test reliability as the degree of precision, consistency or stability of a score over a period of time, that is, whether or not the test enables a testee to achieve the same score on the same or a similar test taken shortly afterwards. Reliability is of paramount importance in proficiency tests since they are generally used as a basis for making crucial decisions about an individual. On the other hand, test validity is essentially concerned with the question of whether and, if so, to what extent, a test actually measures what it is designed to measure. Spolsky observes that "...the central problem of foreign language testing, as of all testing, is validity. With tests of the first class (achievement tests), used by classroom teachers in the control of instruction, this problem is not serious, for the textbook or syllabus writer has already specified what should be tested. With tests of the second class (proficiency tests) it remains a serious difficulty for we have not yet found a way to characterize knowledge of a language with sufficient precision to the guarantee the validity of the items we include or the types of tests we use" (Spolsky, 1975, p. 153). Although content validity may not pose a problem   criterion-referenced achievement tests, teachers should be aware of thelack of watertight rules for construct validity when using such tests as a basis for decision-making.

3. Despite being less recent than the works of Carroll (1980) and Cohen (1980), those of Pimsleur (1966),Cooper (1972) and Cartier (1975) also provide valuable insights into the nature of foreign language testing which the teacher/test developer should find particularly useful. In our view, Language Tests at School (Oller 1979) is an essential reference work for teachers interested in reaching a clear understanding of the differences between pragmatic and discrete-point testing approaches and how these fit in with the communicative-functional notions of use and usage. However, because Oller's work isdirected more toward proficiency testing, we found that Carroll's--and even more so Cohen's--work was more relevant to the aims and focus of the present study.

4. "Functional language ability", as defined by Cohen (1980), is "the ability to use target language knowledge in natural oa naturalistic communicative situations."

5. Cohen (1980) defines the item-stimulus format as that part of an item which elicits data from a student, while the item-response format indicates how the student is to respond to the item-stimulus. Therefore, an "item type" consists of the combination of an item-stimulus and an item-response. The tested response behaviour refers to the accuracy, speed, or quantity of the testee's responses to an item-stimulus.

6. The comprehension objectives listed by way of example (Cohen, 1980, p. 58) are understanding:
    (a) the explicit or implicit meaning
    (b) the conceptual meaning

(c) the communicative value of the text
(d) the relationship between one part of the text and another through cohesion devices
(e) a grammatical relationship between words

7. Examples of these formats are: Compositions, oral presentations (open-ended); multiple-choice, True/False, matching (closed-ended); combination, completion, cloze (restricted-response).

8. See Dolanyi (1981) and Ross-Jones (1981) for a detailed discussion of the needs assessment and objectives components of the project.

9. Naturally, we are aware that as long as linguists and psychologists are unable to reach a consensus concerning the precise nature of the relation between language and thought (in the sense of cognitive processes), there can be no clearcut definition of the term "comprehension". For the time being, therefore, we are obliged to continue teaching and testing comprehension within "apattern built on eclectic traditions and supported not by an adequate theory of reading, or of language, but by a considerable body of empirical data" (Harris,1979, p. 29), while exploring at the same time the possibilities of less conventional testing procedures.

10. See Rajani and Villoria (1981) for the rationale behind this aspect of the teaching of ESP within a communicative-functional framework.

11. See Curiel (1981) for in-depth information concerning materials used in the ESP courses.

12. Clearly, progress in the first aspect will be dependent to a large extent on any advances which are made in the second. We may conclude, as Harris does, that "testing of reading in ESL is presently in the same state of flux and uncertainty as the fields of language testing and reading generally...A number of item types have been identified which seem at the very least, to correlate highly enough with the conventional tests to deserve consideration as replacements. It is still too early, however, to say whether any of these will ultimately pass the theoretical and pragmatic tests that should secure their general acceptance" (Harris, 1979, p. 29).

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CHAPTER VI

PROCEDURES TO FOLLOW IN THE EVALUATION OF E.S.P. COURSES

Genoveva Llinares de Alfonzo

1. Introduction

The term 'evaluation' is familiar to anyone who in one way or another deals with teaching. For most people it brings to mind the related term 'testing'. Yet, 'testing' is only one manifestation of 'evaluation'; 'evaluation' is ultimately associated with a great number of functions and processes. As Beggs and Lewis put it:

> "Teachers evaluate students when they assign grades. Principals evaluate teachers when they rate theit individual teaching capabilities. Superintendents evaluate principals, and school boards evaluate superintendents.Teachers evaluate their instructional materials, and students evaluate their teachers".
> (Beggs and Lewis, 1975,p.6)

In order to cover all areas mentioned above, a definition of evaluation should be broad and flexible. Dressel's definition appears to be a very suitable one:

> "An evaluation is both a judgment on the worth or impact of a program, procedure, or individual, and the process whereby that judgement is made".
> (Dressel, 1976,p.1)

2. Evaluation as a Part of Curriculum Design

For the purposes of this paper the term 'evaluation' encompasses one of the seven steps of a project.(1) When a piece is taken away from the whole, as in our case, it becomes more difficult to understand its functioning and functions within that whole. It is therefore necessary to consider the complete set of steps which make up the process of systematizing E.S.P. course design, so as to clarify the one step with which we are concerned here.

Several authors facilitate descriptions of the above process from the perspectives of both the general field of curriculum development, and the field of E.S.P. Apart from slight differences in style, terms used, and specificity of each stage, all models fall into a general pattern. As an example of this, and for purposes of clarification. a chart is provided comparing the models given by Gagné and Briggs (1974, p.228) and Mackay (1980,p.9) and with our own version, seen as a result of the blending of the core features present in both models.

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[1] This paper is part of the project "An Experiment in Systematized Course Design for E.S.P.at the Universidad Simón Bolívar" , in which a group of professors are engaged in the task of designing courses for students in the areas of Architecture, Biology, Computer Science, Electronic Engineering, Mathematics and Urban Planning.

Gagné and Briggs	Mackay	E.S.P.Poject (U.S.B)
1.Analysis and identification of needs. 2.Definition of goals and objectives	1. Basic information gathering.	1. Theoretical framework. 2. Needs analysis 3. Objectives
3.Identification of ways to meet the objectives. 4.Desing of system components. 5.Analysis of resources. 6.Selection or development of materials. 7.Design of student assessment procedures.	2. Development:texts, teaching points, teaching materials	4. Materials production. 5. Teaching strategies. 6. Testing.
8.Field testing: formative evaluation. 9.Adjustments,revisions. 10.Summative evaluation.	3. Formative evaluation. 4. Summative evaluation.	7.a.Short-term evaluation. 7.b.Long-term evaluation.

From the above it would appear that course evaluation occurs at the end of the design process.It should be remembered though that for any evaluation to be useful, it should take plece in a cyclical fashion. An item is evaluated, improved, tried out and evaluated again in a never ending sequence.

3. Kinds of Evaluation

3.1. Formative and Summative Evaluation

The evaluation of courses has commonly been assigned the two varied functions of a) identifying strengths and weaknesses within lessons, units, or programs, and b) assisting planners in the procedure of decision making towards improvement. These two uses reflect the usual distinction between formative and summative evaluation, present in the previous tables.

The difference between the two types extends itself also to the time time of application of each one, and to the persons who gather and use the information. Formative evaluation takes place while the program or course is being developed, and the most suitable person to carry it out is the teacher who can perceive the advantages or shortcomings of an element while it is being tried out in class. Summative evaluation, on the other hand, is undertaken when the development of the feature in question,i.e., lesson, unit or program, has already been completed. It rests on information gathered by outsiders and serves to help planners or administrators make decisions concerning the final adoption or rejection of an item.(Gagné and Briggs 1974).

3.2. Evaluation of Processes

Among the many authors who deal with the different kinds of evaluation that should be carried out we find Dressel (1976), who suggests the following main types:

- planning or developmental evaluation
- input evaluation
- process evaluation
- output evaluation

interestingly enough, each one of these evaluation types can be identified with one or several of the steps we have mentioned to be integrative of course design,i.e., planning evaluation is equivalent to what we have done trough our needs analysis and objectives stages; input evaluation is equivalent to our stages of materials production, teaching strategies, and testing; process evaluation is equivalent to what we call short-term evaluation. and output evaluation identifies with our long-term evaluation.

With respect to the relationship between the formative and summative types of evaluation and the four types mentioned above,Dressel has stated:

> "Gennerally, planning, input, and process evaluation are tentative and formative -they are used in developing a program. Output evaluation, to the extent that it is used for feedback,development of alternatives and improvement, is also formative.To the extent that it is used for retaining, modifying,replacing, or eliminating a program, it is summative. Thus, summative and formative refer more to the nature and finality of a decision than to the role of evaluation".(Dressel,1976,pp.16-17)

Having already covered the stages of planning and input evaluation , the types of evaluation needed to still be carried out are process and output evaluation. Here we will deal with process evaluation. However, some attention will be given to output evaluation as well.

4. Evaluation Within E.S.P. Courses at U.S.B.

We feel that Cronbach's definition of evaluation is particularly appropriate within the framework of this project:

> "Evaluation is the collection and use of information to make decisions about an educational program"
> (Cronbach 1975, p.399)

In the following sections we will be specifying the kinds of information and decisions we are dealing with, and explaining the means used to carry out the collection of data.

As has been pointed out before, the objective of the project as a whole is that of giving the design of E.S.P. courses a common framework. Due to the vary specific nature of these corses it is impossible for a equivalence to exist between them. What we do think should exist are common reference points -common ways of doinf things. Since each professor undertakes each step individually for her specific course, the ultimate objective of this part of the project is that of providing each professor with common instruments and procedures for the evaluation of the respective materials. The materials to be evaluated include texts, exercises, audiovisual materials, and test materials.

Interestingly enough, in this project, the people who carry out evaluation are the same ones who teach and develop the courses-they fulfill the dual functions of planner and teacher. Moreover, these courses are being designed and taught simultaneously, by virtue of which, decisions whether to keep, modify, or discard units are continuously taking place. In this respect Cooley and Lohnes' observations are quite pertinent:

> "There is debate today over who should be conducting evaluation studies.Some claim that developers of new educational means should not be engaged in evaluating the effectiveness of those means because of their obvious bias in favor of them . This is like saying that Priestley's experiments in oxygen should not be believed because he was biased against the phlogiston theory of burning, or that Galileo's observations with the telescope should not be trusted because he was obviously just trying to support the Copernican theory of the solar system. What tends to keep researchers honest is the publicly available record of what they did and what they found, and not a godlike objectivity which some people seem to feel those doing evaluation should exhibit." (Cooley and Lohnes 1976, p. 2)

4.1. The Information

Process evaluation deals mainly with the interactions which take place within the teaching-learning process,i.e.,interactions of students with people(teachers), things(materials), and prectices (exercises - activities).

With regards to the teacher's role in the teaching learning process, we completely agree with Stanford and Roark when they state:

> "Our viewpoint is that teachers and students should have the same basic goals, and that differences, if any,

> should be in emphasis and methods. By this we mean that in any given educational endeavor all participants should share the same basic goals even though there may be a division of labor and wide variation in procedures and specific objectives. By being a participant, the teacher constructively lowers the barriers between teacher and students and increases the probability of cooperative effort, thus making it easier for students to identify with teachers and with school. Teachers should still take responsibility for their classroom but they will do it as participants in a community of learners engaged in a joint learning venture." (Stanford and Roark 1974,p.10)

It stems from the above that when evaluating teacher performance,attitudes that stimulate students' participation should be searched for,i.e.,it should be checked whether a) course or lesson objec - tives have been clearly explained to students, b)the teacher regularly verifies students' understanding, c) students are led to draw conclusions and are not provided with pre-established ones, d) the teacher tries to establish in the classroom a feeling of mutual respect and understanding, etc.

The overall objective of E.S.P. courses at U.S.B. is that of enabling students to deal efficiently with texts(written or oral) in English they will encounter in the course of their studies.

It has been stated (Curiel 1981) that texts should be authentic, i.e., the same as or 'similar' to the ones students will be dealing with. This similarity should hold in relation to the topic dealt with, the length of the texts, style and linguistic forms present, as well as level of conceptual difficulty. The information required in order to assess the adequacy of texts is based on the existence of such similarity.

If exercises are viewed as ways of dealing with texts, they should concentrate on activities that produce or reinforce the kinds of knowledge that are presumably needed for understanding texts. As an example we might mention some of the kinds of knowledge that, according to Goodman, are involved in reading:

-word recognition
-word formation
-exposition techniques
-recognition of grammatical units
-rhetorical organization
(Cf. Curiel 1981)

Hence, exercises should be; a) varied, to allow for different kinds of knowledge to be exercised, b) repeated, to reinforce knowledge, c) useful, to work towards the achievement of the objectives, and d) relevant, i.e., closely related to the texts. Exercises can be evaluated as adequate if they are proven to possess the desired characteristics mentioned above.

It is necessary first of all to regard tests and other activities such as expositions, reports, group work, etc. as teaching material as well. Archibald mentions that in a student-centered program, such as in the E.S.P. courses at U.S.B. testing is carried out with the students and not on them. (Archibald 1981., p. 5-4)Tests are useful as teaxhing materials because they can be viewed as exercises as well. When the teacher goes over the answers and the students realize where they failed and why, this gives them a hint as to the objectives they do not yet master. It also provides them with a review of information previously given. The results of a test give the teacher feedback about the objectives that have or have not been achieved. But, in order for the teacher to regard the information as valid, factors which could interfere with students performance should be ruled out. Some such factors could be: insufficient amount of time to do the activity, difficult phrasing of the questions, type of answer expected (short multiple choice or long open-ended questions). The teacher should search for the absence or presence of these 'noise' factors.

4.2. The Decisions

We are dealing here with the formative aspect of evaluation. Once the information is gathered the planner has a basis for making decisions as to whether an item should be kept as originally designed, modified or rejected. It is important to say here that these decisions are left to each individual teacher. The information obtained during trial applications of materials is not designed to compare and/or qualify any of the courses as better or worse than any other. (cf. part 4)

4.3. The Instruments

After determining the kinds of information to be obtained and the use for which it was intended the steps to be followed for this part of the project were defined as:

-the design of information gathering instruments.

-the establishment of conditions for their application.

-the determination of ways to record and interpret information.
these steps will now be considered in more detail:

4.3.1. Design

We feel that when studying classroom events the people who can more appropriately talk about them are those directly involved in such events,i.e.,the teachers and the students.

It has already been mentioned that each individual teacher is perfectly capable of identifying and signaling weaknesses within the materials used, but, the teacher's point of view reflects only one side in a two-sided matter, the students being the other and most important participant. Since it is the students who are ultimately the 'consumers of the product', in the sense that they are the ones who will need to use English as a tool, they should be the ones to judge whether their needs are being met.

According to Marsh et al.,

> "the most common criticism of student evaluations is that they are biased by variables unrelated to teaching effectiveness...there is considerable evidence that most background variables such as class size,reasons for taking the course, workload...have little relationship to such ratings." "There is considerable evidence that students can differentiate between factors of instruction ." (Marsh et al. 1975)

Bearing in mind the above considerations, a questionnaire(Appendix 1) was developed to gather students'opinion about teachers attitudes and the use of different materials. (at this point it would seem profitable for the reader to refer back to section 4.The Information) The questionnaire consisted of two questions about the adequacy of the materials used in class throughout the corse, requests for the students to list the course aspects they had liked, and the ones they considered should be improved, and a list of possible teacher's attitudes for students to check how frequently they had been observed.

After a pilot run of this questionnaire was performed the project members came to an agreement about giving more emphasis to the materials used and to leave the evaluation of teachers to be carried out latter on. This was done in the light of the following considerations:

-If both variables (teacher-materials) were evaluated at the same time the results could be confusing. As Dressel has stated:

> "Process evaluation must be specific to each process
> element if it is to be definitive on these points.
> element if it is to be definitive on these(Dressel 1976,p.16)

-If more detailed information were gathered about the different materials used,this would certainly help teachers improve specific items, and move faster towards completion of course design.

-Though teacher attitudes are very important, it is also true that they are much more difficult to evaluate because of the feelings involved. Furthermore, very often teachers disagree upon the best attitude to take in certain respects.

-The aspect of teachers performance does not have to be completely set aside. Our university offers a course in methodology of teaching to all professors interested. There, teachers work under the student-centered approach and are evaluated regularly for feedback on performane. Most project members have already taken the course, and all others are committed to take it soon.

As a result of this a second questionnaire was developed.(Appendix 2) The questionnaire which was given in English, consited of seven questions of the yes/no type, each followed by a request for an explanation of the answer given. At first it was felt that this format was appropriate in order to obtain as much information as possible. Later it proved instead to be a disadvantage, and we had to relinquish the possibility of obtaining such diverse information in favor of gathering more coherent data. When a pilot test of this questionnaire was run, it was evident that revision and changes were definitely necessary because of the following shortcomings as well:

-Students were rather reluctant to complete the questionnaire, because it required much writing.

-Students took a long time to complete it because they had to translate each question.

-Since the questions were completely open, the students gave all sorts of different answers which made it unnecessarily complicated for analyzing the data and tabulating the results.

-Each question concentrated a great amount of information, not allowing for specificity of data. An example could be when students are asked about the topics dealt with in the 'materials'; there were no previsions made for requiring the student to differentiate between the different kinds of materials. In fact, the topics could be very appropriate in one kind of material and not in another, but the question did not force the students to make such distinctions. It was also abvious that the inclusion of tests within the same broad category of 'materials' impeded the addition of questions that arise from the very specific nature of these instruments, but that do not concern other kinds of materials.

In an attempt to overcome the disadvantages mentioned above, a new questionnaire was designed (Appendix 3) along the following lines :

-Short questions of the multiple choice type.
-Questions written in Spanish.
-Clear division into four sections,namely; texts, exercises, audiovisual materials, and evaluation activities, in order to:
i. identify the kind of material being dealt with in each case.
ii. include specific questions dealing with testing materials.
-.Sub-division of original questions for providing the possibility of zeroing in on the specific point being dealt with .For example, question N2 of the second questionnaire was included on

this questionnaire as questions 4 and 5).

Two items were included in this questionnaire that were previosly absent.They were: a request for students to give their overall academic average as well as a request for students opinion about the instrument itself.It was thought that the former might shed some light on a student's answers. The latter arose from the consideration that students might not like to be asked about their average, and that they should be given the opportunity to say so. If this was the case, we would be willing to elliminate the request for such information . The questionnaires were to be filled out anonimously, but students had to indicate the point they had reached in their professional studies at the U.S.B.

A pilot run of this questionnaire was performed.It was found to be an appropriate instrument, since it provides clear and specific information about the different materials being evaluated,and that information is easy to record and interpret. As such, it has been adopted to evaluate the materials developed for each E.S.P. course.

4.3.2. Application

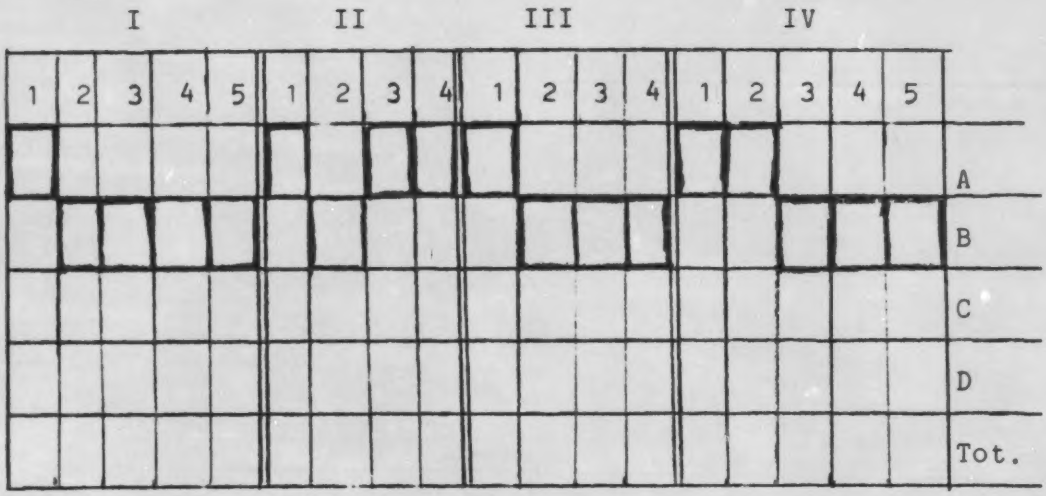
The questionnaire is to be applied several times during a term. This stems from the fact that the content of each course is divided into two or three units per term. The formative aspect of this evaluation requires that each unit be tried and evaluated separately thus allowing teachers to pinpoint weaknesses and to correct or discard only the specific item of the unit involved.

Students are asked to fill out the questionnaires in the classroom, in order to give them the oportunity to request clarification of any doubts while providing the teacher with feedback on any defects inherent in the instrument.

The questionnaires are handed out in class after the evaluative activities for the corresponding unit have been carried out, so that students can provide feedback on these, but, they are not given immediatelly after handing out the students' grades. Feelings of frustration or satisfaction could bias the information either way.

4.3.3. Recording and Interpretation of Data

Data obtained will be recorded in charts like the ones given below. Each teacher is expected to record and interpret the information concerning her course, and to use it for the improvement of defective items.



I. texts:

1. topic
2. concepts
3. length
4. vocabulary
5. gram. structures.

II. Exercises:

1. variety
2. quantity
3. usefulness
4. relation with texts.

III. Audiovisual material.

1. relation with theory.
2. quantity.
3. vocabulary
4. sentence construction.

IV. Evaluation activities:

1. relation with class activity.
2. quantity.
3. length/time available
4. question type.
5. answer type.

Each question in the questionnaire is followed by four choices.The first three allow for qualification of the material, the fourth is a provision in case the students, for any reason, feel they are not in a position to judge,i.e., if for example they are asked about the appropriateness of the audiovisual materials when, in effect they have not been used in class, they should choose answer 4:not applicable. The first three options were organized for all questions in the same order, so as not to confuse the students. The ordering could be labeled 'from the most to the least', or something similar. The following examples might be helpful to illustrate this:

a. the topics were:

__very interesting

__interesting

__of little interest

__not applicable

b. In length, the readings were:

__long

__appropriate

__short

__ not applicable

As we see here, for question 'a' the ideal answer is the first, while for question 'b' is the second. In order for the teacher to locate ideal answers very quickly, the places were they go in the table have been marked with thicker lines. The other answers will always be considered negative without one being preferred over the other.

5. Results of the Inquiry

The very nature of this project rules out the possibility of giving general, final or conclusive results. We can however confirm that: a) we are satisfied with the instrument which has proven to gather relevant and specific information which can be easily tabulated and interpreted; b)materials development for E.S.P. courses seems to be going in the right direction-materials developed to the present have turned out to be fairly appropriate; and c)as a result of the information available in each case individual professors have taken steps towards improvement. Whether they have succeeded or not is a question that will only be answered once these materials are used again and information concerning appropriateness is once again gathered.

6. Further Considerations

Up to this moment our efforts in the area of materials evaluation have been concentrated on what is commonly called 'short-term evaluation'. Our immediate needs, as well as the time factor(courses being designed and taught at the same time) have been decisive in determining this aspect. We must, nevertheless, remember that we a are preparing students to use English as a tool for understanding the texts they will indeed have to deal with during their studies. When we effect short-term evaluations we are faced with one very important constraint, namely,we are asking the students to compare our materials to the texts in English used in their fields, at a point when some of the students have not yet had the opportunity or the need to deal with such texts.

Follow-up studies,i.e.,'long-term evaluation' would perhaps yield more valid information with regards to the appropriateness of our materials. It would certainly be a way of obtaining information about the ultimate contributions of these courses to students' performance. But, as expressed by Cronbach:

> "...the completion of such studies is so far removed in time from the initial instruction that it is of minor value in improving the course..."(Cronbach 1975,p.406)

We are still working on the development of materials for our courses. Only after an exhaustive formative evaluations of these materials has been carried out, will we be able to adopt them on a 'permanent' basis, and only then will we be able to undertake serious follow-up studies of their effectiveness. Considerations have already been made as to the type of instruments and procedures we would need to develop in order to carry out long-term evaluation.Members of our group have showed interest in undertaking projects in this area, but much thought has still to be given to the matter. Whatever the results are of such an inquiry, they should be the subject for other papers still to be written.

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APPENDIX 1

DEPARTAMENTO DE IDIOMAS

ENCUESTA

I EL CURSO:

1. El material (en general) utilizado en el curso fué:

	MUCHO 1	ADECUADO 2	POCO 3
Apropiado			
Estimulante			
De tu agrado			

2. El uso de material audio-visual fué:

	1	2	3
Apropiado			
Util			
De tu agrado			

3. Los aspectos mejorables del curso son:

____

____

____

4. Los aspectos que me agradaron del curso fueron:

____

____

____

II El PROFESOR:	SI 1	A MEDIAS 2	NO 3
1. Identifica claramente el problema			
2. Verifica comprensión			
3. Obtiene de los estudiantes información pertinente al problema			
4. Conduce a la verificación de las hipótesis propuestas			
5. Muestra una actitud de respeto y atención a las preguntas y respuestas de los estudiantes			
6. Formula preguntas claras y precisas			
7. Da tiempo para pensar las respuestas			
8. Evita sugerir la respuesta			
9. Verifica conocimiento previo a través de preguntas			
10. Verifica aprendizaje a través de preguntas			
11. Pide clarificación y justificación de las respuestas			
12. Invita al estudiante a identificar los puntos correctos y los errores			
13. Destaca puntos claves de la respuesta dada para llevar al estudiante a reformular la respuesta			
14. Hizo sentir al estudiante como: a. su compañero			
b. su discípulo			
15. Utilizo un buen sistema de evaluación			

APPENDIX 2

SHORT TERM EVALUATION OF COURSE MATERIALS

CAREER YEAR: 1 2 3 4

In the following questionnaire you will be evaluating the materials you have seen in class. The information you give will help your teacher improve his/her English course. Please answer the questions carefully. (You may answer in Spanish)

1. Was the content of the material revelant to you in your special field? (By CONTENT we mean TOPICS DEALT WITH IN THE READINGS).

   Yes ______. Please explain: ____________________________________
   ____
   ____

   No ______. Please explain: ____________________________________
   ____
   ____

2. Do you find the language used in the materials comparable to that which you will or are using in your studies? (By LANGUAGE we mean THE VOCABULARY, GRAMMAR STRUCTURES, LEVEL OF LANGUAGE DIFFICULTY, ETC.)

   a. ARE USING: Yes ____. Please explain: ____________________________
   ____
   ____

   No ____. Please explain: ____________________________
   ____
   ____

   b. WILL BE USING:

   Yes ____. Please explain: ____________________________
   ____
   ____

   No ____. Please explain: ____________________________
   ____
   ____

3. Do you find that the materials are authentic? (By AUTHENTIC we mean THE TYPE OF READINGS YOU WILL USE FOR YOUR STUDIES)

   a. style of writing: (explanation, instructions, hypothesis, argumental, descriptive.....etc.)

   Yes ____. Please explain: ____________________________________
   ____

No____. Please explain: ______________________________

____

b. length of readings:

Yes_____. Please explain: ______________________________

____

No_____ . Please explain: ______________________________

____

c. level of conceptual difficulty:

Yes_____. Please explain: ______________________________

____

No _____. Please explain: ______________________________

____

4. Is there sufficient VARIETY in the exercises done in class?

Yes____. Please explain: ______________________________

____

No_____. Please explain: ______________________________

____

GIVE SUGGESTIONS: ______________________________

____

APPENDIX 3

Estimado estudiante :

El Departamento de Idiomas en su deseo de perfeccionar los cursos de Inglés que se imparten para las diferentes carreras solicita su colaboración en la evaluación objetiva y constructiva de dichos cursos.

A tal efecto le agradeceríamos responder este cuestionario con la mayor sinceridad.

No es necesario que usted se identifique.

Si necesita alguna aclaración levante la mano y el profesor le ayudará gustosamente.

GRACIAS POR SU COOPERACION.-

INSTRUCCIONES :

Este cuestionario será utilizado para evaluar la (s) ________________________ unidad(es) de trabajo empleada (s) este trimestre. Lea cada pregunta cuidadosamente y seleccione la opción que mejor se adapte a su criterio. Si la pregunta no tiene relación con el curso (Por ejemplo : se le pregunta si los materiales audio-visuales fueron apropiados, cuando en el curso no se emplearon estos materiales) seleccione la opción "no aplica".

I. Comparando los textos (lecturas) utilizados en esta unidad con aquellos que debo leer (en Inglés) durante el curso de mis estudios. Los empleados aqui me parecieron :

1. En cuanto a los temas :
   ______ muy interesantes
   ______ interesantes
   ______ poco interesantes
   ______ no aplica
2. En cuanto al contenido (conceptos-teoría):
   ______ fáciles
   ______ de dificultad adecuada
   ______ difíciles
   ______ no aplica
3. En extensión:
   ______ largos
   ______ adecuados
   ______ cortos
   ______ no aplica
4. En cuanto al vocabulario :
   _____ difíciles
   _____ adecuados
   _____ fáciles
   _____ no aplica
5. En cuanto a las estructuras: gramaticales :
   _____ complicados
   _____ adecuados
   _____ sencillos
   _____ no aplica

COMENTARIOS : ____

____

____

II. Los ejercicios (actividades) realizados en clase me parecieron :

1. En cuanto a la variedad :
______ muy variados
______ adecuadamente variados
______ poco variados
______ no aplica

2. En cuanto a la cantidad :
______ demasiados
______ suficientes
______ pocos
______ no aplica

3. En cuanto a su utilidad (relación entre el ejercicio y el objetivo que se persigue) :
______ muy útiles
______ útiles
______ poco útiles
______ no aplica

4. En cuanto a su relación con los temas y/o textos tratados :
______ muy apropiados
______ apropiados
______ poco apropiados
______ no aplica

COMENTARIOS : ______________________________
____

III. Los materiales audio-visuales empleados me parecieron :

1. En cuanto a su relación con la parte teórica del curso :
______ muy apropiados
______ apropiados
______ poco apropiados
______ no aplica

2. En cuanto a la cantidad :
______ demasiados
______ suficientes
______ pocos
______ no aplica

3. En cuanto al vocabulario :
______ difíciles
______ adecuados
______ fáciles
______ no aplica

4. En cuanto a la construcción de las oraciones :
______ complicados
______ adecuados
______ sencillos
______ no aplica

COMENTARIOS : ______________________________
____

IV. Las actividades de evaluación me parecieron :

1. En cuanto a su relación con lo visto en clase :
______ muy apropiadas
______ apropiadas
______ poco apropiadas
______ no aplica

2. En cuanto a la cantidad :
_______ muchas
_______ suficientes
_______ pocas
_______ no aplica

3. En cuanto a la relación entre la longitud y el tiempo disponible :
_______ largas
_______ adecuadas
_______ cortas
_______ no aplica

4. En cuanto al nivel de dificultad :

a) planteamiento de las preguntas
_______ difíciles
_______ adecuadas
_______ faciles
_______ no aplica

b) respuestas exigidas
_______ difíciles
_______ adecuadas
_______ fáciles
_______ no aplica

Por favor indique su año de carrera e índice académico aproximado.

año de carrera : 1 _____ 2 _____ 3_____ 4_____ 5_______

Indice aproximado.
_______ menos de 3.5
_______ 3.5
_______ 4
_______ 4.5
_______ 5

LE AGREDECERIAMOS INMENSAMENTE CUALQUIER COMENTARIO QUE QUIERA HACER SOBRE LOS ASPECTOS MEJORABLES DE ESTA ENCUESTA.

____

____

____

____

____

CHAPTER VII

THE METHOD OR THE HOW TO IN ESP COURSES

Sonia Villegas de Rajani
and
Nora Soto-Rosa de Villoria

1. Problems in Defining What Methodology is

Methodology being such an essential and basic element in the teaching process, it would seem that finding an adequate definition would be an easy task. However, when one begins reviewing the literature on language teaching in search for some statement defining exactly what methodology is, one encounters instead a plethora of terms and nomenclatures. But nowhere is there to be found a definition which might help us understand the dynamics involved in the teaching strategies used in the language classroom.

One of the difficulties in defining any concept in ELT is precisely the vast number of terms and their different connotations.

> "Over the years, teachers of language have adopted, adapted, and developed a bewildering variety of terms which describe the activities in which they engage and the beliefs which they hold."
> (Anthony, 1963, p.1)

Each individual has his/her own way of naming concepts or ideas and of interpreting them. Thus, a systematization of the terminology has not been possible until now. Devon Woods among others has described this situation as a "communication block" in which the two parties involved (the theorists and the language teachers) have difficulties in communicating with each other on the same level.

It has also been argued that classroom techniques are "personal and outside the scope of the theories of language and learning" (Woods, p.1). Therefore, how can there be an exchange of information that is too individualistic and specific to be of any use to other people?

Another difficulty found in the quest for a definition resides in the fact that since methodology has been viewed as an individual process with an individual stamp on it, it is rather difficult to make comparisons among other diverse approaches. Moreover, it is no easy task to determine how the participants in the teaching process, i.e. teacher, student, curriculum designer, etc, view the pragmatic and theoretical elements involved in this process:

> "Thus we can be faced with a situation in which the various participants in the teaching process-teachers, students, researchers, educators, supervisors, curriculum workers-hold idiosyncratic views with respect to the relationship of the underlying theoretical rationale to the associated classroom practices. " (Woods, p. 12)

There are other problems involved in the definition of methodology such as the blurred distinction between the materials production process and the actual use of these materials in a classroom. Although theoretically there is a difference,in practice the borderline between the two is unclear and often confused. A good example of this confusion is the fact that generally the main emphasis in course design projects is on the materials production stage, the aspect of methodology being left up to the teachers- no guidelines are given concerning how the materials should be dealt with in class.It is important to clarify that we feel the production of materials is a basic step in curriculum design. But it is also true that a description of the teaching strategies should be included in every course design as well.

Finally we might add that a justification for the absence of a definition of methodology in language teaching could be the fact that up until several years ago, before the advent of the communicative approach and ESP, the best structured courses were those geared towards the beginning student. These types of courses had a lot of information for the teacher on classroom procedure Courses for more advanced students, however, were less structured and consequently lacked that important information.

From what has been discussed so far, we might be tempted to conclude that the search for a definition of methodology is a fruitless enterprise. After all, why do we need to define methodology? Isn't it something which comes naturally with time and experience in the teaching process? The fact is that it is important to base our teaching on firm grounds, to specify what methodology really involves and to combine the artistic aspect of teaching with a scientific analysis of its underlying strategies:

> "In today's world any educator worthy of the name is deeply uncomfortable if he can not believe that his work bears some demonstrable relationship to established scientific fact."
> (Prator, 1964, p.2)

Furthermore, our success as educators depends very often not only on how much we know or how well we have prepared our materials but also on how we use them in class:

> "...in the teaching situation it is the methods used more than any other factor that determine the results achieved." (Prator, 1964, p.11)

2. A Definition of Methodology

Thus overcoming the difficulties of unifying different criteria in the definition of teaching strategies, we will attempt to determine for our purposes the limits of such a definition.

We may start from a more general viewpoint, i.e. by searching for the definition of methodology in the general area of education.

According to Luiz A. de Mattos, the didactic method involves "the rational and practical organization of the resources and procedures of a teaching with the purpose of guiding the learning process of students towards the predicted and expected results, i.e. to take the student from the situation of not knowing anything to the satisfactory and firm control of the course's subject matter." (Mattos, 1963, p. 82)

The Brazilian pedagogist adds that this method is based on five important principles:

- -the principle of purpose
- -the principle of sequence
- -the principle of adequacy
- -the principle of economy
- -the principle of orientation

and also that there are three basic elements: the didactic language, the auxiliary resources and teaching materials and finally the didactic action.

By breaking down this definition, we can make several statements concerning the role of methodology in a teaching situation.

First of all, this organization of resources and procedures has to be a well-planned and well-thought out stage. It should not be something done on the spur of the moment. Nevertheless, the method requires the teacher to be practical and flexible in his/her techniques in order to meet the needs of the students. Sometime by being too strict and fixed in our teaching behavior we may hinder more than help the learner.

The five principles given by Mattos constitute a global view of what methodology should be concerned with. The needs of the students and their purpose in learning a foreign language become the most important element in a teaching situation followed by the sequencing of all the structures and materials used to meet these needs and purpose.

The adequacy of our materials or resources in relation to the students we have and the kind of structures or concepts we want to teach determines their use in an economical way.

> "Every didactic method attempts to achieve its objectives in the fastest, easiest and most economical way, avoiding the waste of time, materials and efforts, not only on the part of the students but also on the teacher's."
> (Mattos, 1963,p. 83)

Thus the method used by the teacher will be the tool by means of which he/she will guide the students through the realms of learning.

We can also point out that the materials used in a course are but one of the elements in its methodology. The way the teacher communicates his/her knowledge to the student through the language used and through the class strategies employed are also essential elements that need to be considered.

At this point it is necessary to distinguish between three terms that sometimes are used interchangeably by some people. Mattos makes a clear distinction between resources, techniques and procedures. He describes resources as being the"physical means" (Mattos, 1963,p. 86) available for teaching. Things like textbooks, workbooks, the blackboard, maps, charts, audiovisual materials are all examples of resources.

Techniques on the other hand, are "the rational ways (and from experience, the efficient ways) of conducting one or more stages of the learning process." (Mattos, 1963, p.87) He includes examples such as the technique for motivation, for evaluation, for audio-visual materials, etc.

Procedures are "parts or a set of teaching activities in a specific stage of the teaching process." (Mattos, p. 87) For example, the procedures used for questioning, for demonstrating, to give explanations, etc.

Edward M. Anthony in his article :"Approach, Method and Technique" (*English Language Teaching*,17, Jan. 1963) also discusses three definitions which help to establish some common grounds in the terminological aspect of language teaching. These definitions are given in a hierarchical order in which "the organizational key is that *techniques* carry out a *method* which is consistent with an *approach*".

The first term defined is approach:

> "I view an approach-any approach-as a set of correlative assumptions dealing with the nature of language and the nature of language teaching and learning." (Anthony, 1963, p. 5)

Thus the approach deals with concepts and ideas related to the way we view language teaching and learning theories. ESP is an approach since it is based on several assumptions concerning language teaching such as the purpose for learning the language and the communicative aspect of language.

Method, according to Anthony, "is an overall plan for the orderly presentation of language material, no part of which contradicts, and all of which is based upon the selected approach. An approach is axiomatic, a method is procedural." (Anthony,1963,p. 6)He adds that there are several factors which can influence the method used. Some of these are related to the learner such as the student's mother tongue, his/her age, cultural background, previous experience with English, etc. Other factors we could include here are the purpose of the course, the number of students in the class, the duration of the course, etc. All of these are variables that will affect the organization plan developed by the teacher.

The third term defined is technique:

> "A technique is implementational-that which actually takes place in a classroom. It is a particular trick, strategem, or contrivance used to accomplish an immediate objective."
> (Anthony, p. 7)

From these definitions, it becomes clear that the method is a plan and that the techniques are strategies used to implement that plan. The former is more general and involves more aspects than the latter which is aimed specifically at a target situation and is observable.

We could add that a lesson plan is the best way to illustrate the differences between approach,method and technique. A good lesson plan would include these three aspects but always making a distinction among them. Generally, the approach is stated in an implicit manner since the objectives and method of the lesson plans would have to be based on the approach or assumptions that the teacher has in relation to the language and the teaching process. The way in which activities are organized would constitute the method, and the specific strategies would be the techniques.

3. Methodology and The Communicative Approach in ESP

Due to the fact that ESP courses a the USB are designed within the framework of the communicative approach, it is important to briefly review some of the basic concepts of both in relation to a teaching methodology.

As pointed out in the first chapter of this project (Villoria and Rajani, 1981), the main characteristics of ESP courses is that they are learner-centered. It is the learner who determines the objectives of the course through the analysis of his/her needs, be they immediate or future. (Ross-Jones, 1981).

On these bases, Martin K. Phillips, in his article "Towards a Theory of LSP Methodology" (MacKay R. and Palmer, J.D. "Languages for Specific Purposes-Program Design and Evaluation" 1981,p.92-105) states that "the structure of LSP tasks must be determined by the structure of the behavioral objectives of the learner's special purpose" and that "this structure must be at the highest practical level of focus" (Phillips, 1981, p. 97). These two considerations entail a particular methodology both for the production of materials and the generation of classroom activitie Phillips elaborates on four methodological principles.

The first one, called "the principle of reality control",states that simplification of tasks to make them more accessible to the learner can be undertaken as long as it does not interfere with the parameters of the student's special purpose. (Phillips, 1981, p. 98). The second principle concerns "non-triviality" and it refers to the fact that the student must perceive the learning experience as a meaningful activity.

Tasks to be performed by the student should be relevant to the special purpose objectives, and if, for instance, grammar items have to be incorporated, their teaching should be generated by the special purpose task. Thus, in ESP great emphasis is given to relevant language practice. This is where the communicative approach with its emphasis on "meaningful communication" (Canale and Swain, 1979) and "commitment to reality" (Maley, 1980, p.10) is relevant to the field. Therefore in ESP courses with a communicative approach, the learner is viewed as being an active participant not only in the learning process but also in the teaching process.

Phillip's third principle, that of authenticity, results from the previous two principles and it states that "the language that the student acquires through following the LSP course must be authentic, that is, it must be the language naturally generated by his/her special purpose". (Phillips, p. 101) Exposure to authentic language and situations will help the learner achieve autonomy in his/her encounters with the language by learning how to cope with the difficulties present in authentic language. The fourth principle refers to the"tolerance of error" whereby "error of content and of formal adequacy are to be judged as unacceptable only to the extent that they entail errors of communicative adequacy" (Phillips, p.103). Instead of designing classroom activities which minimize the possibility of error, it is better "to opt for a policy of progressive elimination of significant error" (Phillips, p. 104), allowing the learner to make hypotheses about the structures and the functioning of the language and test them in communication with native speakers. Phillips concludes that these principles should be applied in classroom techniques according to the nature of the LSP course. There is not a set of specific classroom techniques that should be considered acceptable in a LSP classroom. They can be acceptable as long as they are generated by the learner's purpose, the educational context and the above mentioned principles. (Phillips, p. 106)

The implications that these factors have in the methodology of ESP courses are varied and in some cases are not quite clear. As stated by Brumfit, in this approach "theory has outrun practice" (Brumfit, 1980, p. 1). However, we should mention some of these implications as a reflection of our own teaching experience at the USB.

An important consequence of the ESP approach is that due to the interrelationship between the subject and the language, the role of the teacher in the teaching-learning process is that of a facilitator, i.e. in this approach, the teacher needs to be flexible and adaptable in order to help the student through his learning process. As Croft points out, the "ESP teacher's most acceptable and effective role, in addition to that of pure language teacher, is not a pseudoteacher of subject matter students have previously learned or expect to learn in their specialist studies or occupations, but as a teacher of things not learned as part of the courses in these specialisms."(Croft, 1981, p. 149).

The role of the teacher and the student in the classroom has significantly changed from that required in the audiolingual approach, for example. In this approach, the teacher had absolute control of the input and output the student would receive and emit respectively. This information given and produced by the student was never allowed to be expressed in the student's mother tongue and there was almost no tolerance of error. In the current approaches, there has been a visible relaxation in the acceptance of the learner's native language and of his errors since the main emphasis is on being able to communicate:

> "The current thinking considers the student's creative involvement more important to the learning process than the mere avoiding of errors." (Newton, 1974, p. 24)

To conclude this section we should add that the effect of ESP on the current state of affairs in the field is summarized in the following statement:

> "..to raise standards, generate renewed intellectual interest in a profession which constantly risks boredom, and offer new prospects to hardening clients." (Sinclair,1978,p.1)

4. The Methodology in Reading

4.1. The Reading Process

As mentioned throughout this project, reading constitutes our main teaching objective. Thus, in developing a methodology for the teaching of reading in an ESP course, it is necessary to take into account the salient characteristics of the reading process itself as well as the use of authentic materials.

With respect to the reading process, the current literature in the field describes reading as a selective, tentative, anticipatory and predictive process (Goodman 1967, Wardhaugh 1970, Smith 1971). Wardhaugh's description of reading aptly synthetizes the above mentioned features:

> "When a person reads, a text, he is attempting to discover the meaning of what he is reading by using the visual clues of spelling, his knowledge of probabilities of occurrence, his contextual-pragmatic knowledge, and his syntatic and semantic competence to give a meaningful interpretation to the text. Reading is not a passive process, in which a reader takes something out of the text without any effort or merely

> recognizes what is on the page and then interprets it, a process in which the stage of decoding precedes a stage of involvement with meaning...Reading is instead an active process, in which the reader must make an active contribution by drawing upon and using concurrently various abilities that he has acquired." (Wardhaugh in Robinett 1974 p.31)

Therefore, reading "involves an interaction between thought and language" (Goodman, 1967, p. 3). From the above mentioned information, we can assume that reading is a complex process. A great deal of literature has been dedicated to the description of the reading process, but since it is such a complicated interna process, it has not as yet been clearly unraveled. According to Betty Wallace Robinett, "any one way to teach reading continues to elude us perhaps because the conclusion forced upon us by recent research is that the reading process involves some kind of global attack by the reader on the printed page" Robinett,p. 35). Eskey believes that the reading activities do not merely involve a guessing procedure but "has to be something more systematic" (Eskey, 1973 p. 35). For him the ability to read is innate:

> "It seems that for reading as for the higher level language functions, the human mind must be innately programmed and that the job of the teacher is to activate, not to create the program. Teaching a skill as complex as reading is mainly a matter of getting the student moving in the right direction and providing him with feedback as he develops that skill to the best of his largely innate ability." (Eskey in Robinett 1974 p.35)

The use of authentic texts serves as a stimulus to the student allowing the teacher to recreate in the classroom a real-life communicative situation.

4.2 Methodological Implications for The Teaching of Reading Skills

Bearing in mind the two aspects briefly mentioned before, the ESP reading course should involve task-oriented learning, that is, the focus of the course should be on "learning strategies rather that on teaching technique" (Phillips,1981 p. 28). The methodology used should make emphasis on learner-centered situations where the responsability for learning is more "evenly shared between the student and the teacher", the latter acting as a "linguistic consultant called in by the student to elucidate difficult points" (Phillips, p. 28). Ultimately, "the student is responsible...for his own progress" (Phillips, p. 28). Therefore, the task of the teacher should be "to monitor the efficiency of the skill techniques, to identify language problems as they arise and to prescribe remedial work when necessary" (p. 28). As a direct consequence of using authentic materials, problem-solving situations are the most relevant type of activities to be performed in a reading ESP classroom. They can make good use of the student's background knowledge and of his knowledge of the subject matter. In this respect, the teacher "is no longer the undisputed authority on the text and must acknowledge the student's expertise in the subject" (Phillips, p. 28).

When we take into account the use of authentic materials and the view of reading as an internal, complex process, group work constitutes a relevant way of conducting classroom activities.

It allows for flexibility in the achievement of reading skills and in the treatment of texts for comprehension, obliges the students to discuss problems thus encouraging cooperative activity when dealing with a text and turning the students' conceptual and linguistic differences into an advantage; permits the integration of students and allows for individualized selection of materials for different groups to stimulate communication and to increase degrees of specialization (Phillips, p. 28).

In other words the methodology to be used in a reading course has to be flexible in order to allow students to learn at different paces and involve them in the learning process; to cater to the students' needs; to accomodate differences in teaching styles. Teaching strategies should not exclusively refer to reading skills, but also incorporate speaking, writing and listening comprehension (to a lesser degree) as motivating strategies. The teacher should also make use of a variety of audio-visual aids, such as charts, pictures, the over-head projector, the blackboard, video-tapes, tapes, slide shows, films, etc, to liven up classroom activities and as another means of presenting students with real-life materials and situations.

These resources should only be regarded as aids and their use should always be integrated with the other materials used in the course. Videotapes constitute a novel aid and offer several advantages. Consequently, they are now becoming more widely used. The use of video is highly motivating for the student since:

"It can expose him to 'live' instances of communication rather than the usual simulations which teachers or text-book writers have to resort to." (Kennedy, 1979 p. 2) Since the teacher has control of the output, teachers and learners "have time and opportunities to select and discuss those aspects of the materials which need clarification or explanation" (Kennedy, p. 3). By means of the video, the students can be trained in mechanical reading skills such as hand manipulation and left-to-right eye movement in the early stages of reading and writing. Sherrington (1973) suggests that roller captions as well as subtitles with a visual presentation "can be used to increase reading speed and the ability to skim and scan for information" (Sherrington,1973, p. 3). Video is also helpful in developing the skill of note-taking by presenting the students a "realistic verbal and non-verbal context" in which this activity can take place (Sherrington, p. 3). Through video, lecturettes can be easier to understand since students have access to the non-verbal elements of discourse present in "normal face-to-face interaction" (Sherrington, p.4). It is an aid that permits the integration of language and content.

4.3. The Teaching of Reading: General goals and Procedures

As yet , there is not established methodology with a set sequence of teaching strategies for teaching advanced reading. The current literature usually deals with general methodological approaches or describes specific methodologies used in specific case studies or developed for a particular teaching objective. Here it is worthwhile referring to William Norris' description of what a reading course involves in terms of skills and procedures for conducting the lesson, and to Fraida Dubin and Elite Olshtain's article, "The Interface of Writing and Reading"(Tesol Quarterly, Vol. 14 N°3,1980) where a sequence of activities and techniques to develop efficient reading is described. These two articles have been consulted due to their general nature.

4.3.1.

Norris suggests five areas or skills that readers should develop in order to read efficiently:

1. Speed of recognition and comprehension
   - a. Word-recognition speed: improving eye movement, visual discrimination.
   - b. Word comprehension speed: symbol-sound-meaning association.
   - c. Sentence-structure recognition: eye sweep, reading by structure.
2. Vocabulary recognition and comprehension
   - a. Word formation: derivation and compounding
   - b. Lexical range: choices and restrictions
   - c. Vocabulary in context: using context clues to meaning.
3. Sentence structure and comprehension
   - a. Sentence structures: understanding advanced-level conjunction, nominalization, embedding, etc. and grasping the main idea.
   - b. Sentence comprehension: understanding the full meaning.
4. Paragraph structure and paragraph comprehension
   - a. Paragraph organization: the central idea, paragraph development.

  - b. Scanning for specific information
  - c. Full understanding:paragraph analysis

5. Comprehension of the complete selection
  - a. Surveying for the main idea
  - b. Scanning for specific information
  - c. Reading for full understanding

(W. Norris, "Advanced Reading: Goals, Techniques, Procedures", p. 203, FORUM, Vol. XII, N°3-4, 1975)

In this article, Norris presents several sample exercises that can be used to develop the above mentioned skills and says that the techniques used to produce materials are not unique to the teaching of reading: matching, multiple choice and open-ended questions serving several purposes (namely skimming, scanning, inference, expansion, evaluation),fill-in-the-blanks, rearrangement, transformations, summary outline, and paraphrase (Norris, p. 204). Norris suggests that the activities for reading comprehension should be organized in three stages:pre-reading, reading and follow-up activities. In the pre-reading stage, the teacher may prepare the student for the main objective of the lesson or unit, deal with difficult vocabulary, motivate the student, or prepare him/her to cope with linguistic problems he/she may encounter when reading the text. For the reading activities, Norris recommends the reading aloud of sentences or paragraphs or the whole selection, with questions to check comprehension. This oral reading could be followed by silent reading. In the follow-up stage, the activities should provide the practice necessary to attain the objectives of the lesson. This can be achieved by using exercises of the type mentioned before which can be conducted orally or in writing. Through homework, as part of this stage, the teacher can ask the students to write a summary, an outline, a paraphrase of the selection, answer comprehension questions or even use new vocabulary in sentences. Homework can also be used to prepare the student for the next lesson by asking him/her to skim, scan or study vocabulary in context (Norris, p. 207-208).

4.3.2.

Dubin and Olshtain have elaborated a sequence of activities and techniques for efficient reading on the basis of the relationship between the writing and reading processes:

> "In analysing the elements in written communication, there is a parallel between writing and reading that is comparable to the match between speech produced by the speaker and interpreted by the listener. The writer utilizes syntactic, semantic, discoursal and logical devices to encode the message in the form of a written text. The reader must use the same devices to interpret that message."
> (Dubin and Olshtain, 1980, p. 354)

First of all, a reader must have a purpose for reading. He may want to read for general or specific information. So the reader should learn how to recognize and make use of external clues, such as introductions, titles, tables of content, and back matter, to distinguish general from specialized information. (Dubin and Olshtain, p.357) Then, the reader should know how to grasp the main idea and for this the following techniques are suggested: skimming(reading through the complete text without looking up the unfamiliar words),providing the student with key words or frequently used words before he starts reading, or supplying the student with "introductory material which set the stage for the selection".

Before reading for full understanding or plunging into the reading, the student should discover the author's plan and point of view. One way of teaching him/her to do this is by pointing out the elements that create unity in the reading selection. As the learner deals directly with the text, he needs to follow the sequence of the discourse, that is to see the sequence of main ideas and the subordination of supporting details. The rhetorical devices used by the writer to elaborate the paragraphs should be pointed out to the student by techniques such as the picking out of words and the use of marginal subheadings ("This paragraph expands the topic through contrast"). "Later, learners can be given a chance to supply their own analysis of the type of expansion thought utilized in the fragment by selecting from a list" (Dubin and Olshtain, 1980, p.360).

In order to fully understand a text, the student has to be trained to identify and understand the discourse devices used by the writer (such as reference and reiteration) as well as the syntactic devices and transitional expressions, which give cohesion and coherence to the reading passage (Dubin and Olshtain,p.362). As a further consideration, the authors advice the use of topic-related texts since reading "with understanding implies bringing to the material background,knowledge and previous experience" (p. 358).

5. The Method Used in the ESP Courses at the USB

5.1. Introduction

At the beginning of this project, the methodologies used in the various ESP courses were very different due to the fact that we all had different professional backgrounds and were using our own intuition rather than guidelines set by the department. From the development of the project, our methods have coincided as a result of our common theoretical framework and interchange of information. Consequently, although a complete systematization has not been possible nor is advisable, the similarities outnumber the differences.

It is not advisable to have total homogeneity in this respect since this would be boring not only for the teachers involved but for the students as well. Furthermore, this homogeneity is not possible due to the differences which these courses exhibit in relation to each other. Factors, such as the duration of the course, the subject-matter, the individual teaching style, students' needs, etc., have to be taken into account.

It is important to point out that our courses are aimed at second-year level students and that during their first year they were enrolled in the first year basic scientific English course. Thus, the objectives covered during this year were our point of departure for the ESP courses. As a result, we all began in the same circumstances. Other common broad criteria such as pragmatism, dynamism and variety, have been established for our ESP courses (Archibald 1981).

By pragmatism we mean the ability of the course, as reflected in the methodology used, to meet the actual needs of the student, even if this involves some disregard of traditional taboos in foreign language teaching. An example of this is the use of the students' native language if this seems essential for understanding a given concept or relationship. It is felt that the use of the students' native language is a valid way for them to indicate their comprehension of a text.

The term dynamism refers to the attempt to involve the student actively in the learning process whenever possible; hence, the use of listening and writing skills as motivating strategies and as reinforcement for the main objective of reading comprehension. An effort is being made to create a learner-centered classroom with a great deal of interaction between the students and the teacher. It has been our experience that students enjoy working in groups on reading comprehension activities in order to exchange ideas and help each other with the interpretation of the text under study . Another source of dynamism has been the use of task-oriented activities on the part of some teachers. This implies some kind of student activity based or suggested by the text being studied.

The third criterion, variety, is in a sense a corollary to the first two, since it is derived from the very requirements of pragmatic and dynamic methodology.

We should add that the most visible similarity in these courses is the fact that the methodologies used are eclectic, which means "choosing what appears to be the best from diverse sources systems or styles" (Newton 1974, p.30). Some of the concepts of the ESP and communicative approach have been adapted to our situation without abandoning completely other approaches such as the structural approach. From this approach we have kept certain ideas such as the teaching of vovabulary and grammar whenever needed to comprehend a text. The use of grammar as a tool in the teaching of reading should not be overlooked. Brumfit states that the teaching of grammar is "economical and capable of being systematically ordered for teaching" (Brumfit 1980, p. 5).

5.2. The Questionnaire

In order to give an accurate description of the methologies used at the USB, a questionnaire was designed to collect all the necessary information. This questionnaire (see Appendix I)was administered to the professors in charge of the ESP courses. We tried to make it as objective as possible to save teachers from having to give tedious explanations. Nevertheless, some questions had to be answered with brief explanations.

The first part of the questionnaire had some general questions concerning unit organization and the use of a lesson plan. As discussed before in this project (see Curiel 1981), the unit organization of our ESP courses may depend on the theme or topic related to the specialty, language functions and on types of literature. Through the questionnaire, other related criteria were established: the vocabulary of the text (as in the specific case of Computer Science) and sometimes in relation to the degree of difficulty of the discourse in some courses such as Urban Planning, Computer Science, Electronic Engineering and biology.

Unit activities, in broad terms, are usually organized in three stages: pre-reading, reading and post-reading or follow-up activities with the exception of Biology, in which these three stages are not so distinctive. The other courses follow this sequence giving more or less emphasis to each stage depending on the content of the unit.

A general lesson plan is used by the majority of the teachers of the ESP courses. Almost all the courses use a teacher-prepared workbook with readings and exercises incoorporated. These workbooks serve as lesson plans since they have the materials sequenced and organized in relation to the topic, language functions, style of literature, vocabulary and degree of difficulty of the texts.

5.2.1. The Pre-reading Stage

Pre-reading activities are used by teachers as a motivating element in the course. They are also used to introduce the topic or general theme of the reading by giving students other shorter readings which complement the ideas of the text or by exposing students to a.v. material related to the theme of the text. In Urban Planning, for example, a short text about Egyptian civilization was taped in order to introduce a reading which dealt with the evolution of the first cities in Mesopotamia and Egypt.

Other ways of using pre-reading activities are to deal with linguistic and conceptual difficulties of the text and to teach some of the objectives of the course, such as skimming, scanning, distinguishing main ideas from supporting details, recognizing the structure and vocabulary typical of the rhetorical functions dealt with in the course, understanding the relation between parts of a sentence, a paragraph and text through lexical and grammatical cohesion devices, and transition elements in discourse (developing an idea, transition to another idea, concluding, emphasizing a point already made, anticipating an objection or contrary view).

To deal with vocabulary, teachers use different types of exercises, namely asking students to provide synonyms or antonyms, presenting excerpts from the reading and asking students to guess meaning from context, discussing the difficult words in class. In courses such as Electronic Engineering and Computer Science students are given glossaries with important technical terms. Students who are further ahead in the specialty can be very helpful in explaining specific terms to the rest of the class.

Connectors are also dealt with in the pre-reading stage of all the courses in the following way: asking students to underline them in a text or to provide a synonym of the connector. Students are also asked to complete sentences either by choosing the correct choice (in relation to the meaning of the connector) from a group of sentences or by making up the rest of the sentence. The teacher also points out the connector to the students and discusses with them the way the sentences or paragraphs are connected. Grammar is rarely included in this first stage and contextual clues are part of class discussion sessions.

The sequence given to these activities varies from one course to the other. Urban Planning and Mathemetics begin the pre-reading stage with scanning and skimming activities, prior to dealing with content, difficult vocabulary and connectors. In Electronic Engineering the sequence varies in relation to the teacher in charge of the course (there are two teachers). One begins with vocabulary and connectors, leaving the skimming and scanning exercises for the end. The other teacher begins with skimming , content and scanning and then deals with vocabulary and leaves connectors as the final activity.

Group work is used by almost all the ESP teachers as a way of approaching pre-reading activities. In Biology, Urban Planning and Computer Science it is always used, while Mathematics, Electronic Engineering and Architecture use it less frequently. Students are also given tasks to be carried out individually or together with the teacher.

The a.v. materials most frequently used are video-tapes, pictures (the ones included in the teacher-prepared workbook), charts (especially in Mathematics and Electronic Engineering) and the blackboard. Other materials employed are handouts, printed matter and filmstrips (as in the case of Biology).

In Computer Science, Urban Planning and Electronic Engineering pre-reading activities are assigned 25% of the course's time in relation to reading and post-reading activities. In Architecture and Biology this stage accounts for 15% of the course's time, while in Mathematics it corresponds to 50%.

5.2.2. The Reading Stage

In the reading stage the most common activities used by all the ESP courses at the USB are skimming (through wh and open-ended questions, matching exercises, classroom discussions, labelling paragraphs, underlining the topic sentences or by reading the text quickly); scanning (through wh questions and matching); content comprehension (by using true and false statements, wh, open-ended and multiple choice questions, fill in the blanks, classroom discussions, labelling diagrams and completion of tree diagrams); and discourse comprehension activities (through paragraph analysis, anaphora, cataphora, syntactic devices, reference words, transition elements in discourse, connectives).

The reading stage includes other activities, employed less often , such as information transfer (the student has to reconstruct the information of a text through charts, diagrams, tables, drawings to be labelled or as a point of departure in order to write short definitions or descriptions); summary (the student has to reconstruct the information in the text by writing a summary using the topic sentences, the ideas obtained from skimming, by reordering the main ideas to form a coherent passage, or by giving the students the summary of the text to be analysed); synthesis (the student has to reformulate the information of the text in order to answer questions, complete outlines or to write a synthesis of the text) and expansion (the student relates the information of a given text to other readings through exemplification and further explanations). English for Mathematics is the only course that always includes these last four activities within the reading stage.

The sequence of the above mentioned activities in the unit varies very little among the different ESP courses. Usually, skimmimg, scanning and discourse comprehension are the first activities to be performed, followed by content comprehension and summary, and synthesis and information transfer in an interchangeable order. Expansion is always included at the end of the reading stage. In order to carry out the tasks in this stage, group work and individual work are preferred by the teachers of all the ESP courses.

The visual resources most commonly used in this stage are charts, pictures and diagrams that appear in the given text and the blackboard for exemplification, clarification and summary.

With the exception of English for Mathematics and English for Electronic Engineering , the reading stage constitutes the bulk (50%-60%) of the unit in relation to the pre-reading and post-reading activities.

5.2.3. The Post-reading Stage

Broadly speaking, in our ESP courses the follow-up activities serve to reinforce the vocabulary and reading skills dealt with in the given unit and especially to reinforce and expand the concepts related to the content of the text being analysed. For all the courses, the main purpose of this stage is to summarize the contents of the unit. With regards to the activities, discussion questions of various types are used by all the courses. Urban Planning and Biology always make use of videotapes, while Computer Science, Architecture and Electronic Engineering use this a.v. aid occasionally. Tables, outlines, summaries and fill-in-the-blanks are commonly included in this stage. In English for Architecture, research projects are also assigned. In English for Electronic Engineering, the teacher may also ask the student to draw an apparatus using the information presented in the text. In English for Biologists, film-strips are used sometimes in order to summarize or expand the contents of a text by asking the student to write a short passage using the visual information provided by the film-strip, such as the picture, titles and roller captions. Homework constitutes an important follow-up activity for courses such as Urban Planning, Electronic Engineering and Computer Science.

In most of the ESP courses, the frequent sequencing of these activities is to begin the follow-up stage with discussion questions or by asking the student to write or complete outlines, summaries and tables. Then, fill-in-the-blanks exercises and homework assignments are given. The use of video-tapes is always the last step in this stage. English for Architecture does not have a particular sequencing of these activities in the teaching units. Group work is often used when students have to write tables, outlines, summaries and research projects.

With the exception of Electronic Engineering, 25% of the unit's time is assigned to the carrying out of this stage. The visual or audio-visual aids utilized are charts, pictures and drawings included in the reading or brought in by the students (as in Electronic Engineering), the over-head projector (Electronic Engineering), the blackboard (used by all the courses to clarify information) and film-strips (as in Biology).

5.2.4. Listening Comprehension

Although reading is our main objective, we also train the students in listening comprehension skills as reinforcement and motivation for reading. The various ESP courses give different emphases to this secondary skill within their course activities, with English for Mathematics, Electronic Engineering and Biology being the courses that accord most emphasis.

The most common technique for training the students to understand spoken discourse is by speaking to them in English as much as possible. Bilingual students who attend the compulsory ESP courses (Electronic Engineering, Architecture, Mathematics Urban Planning) are a useful resource for this activity.

Aids such as video-tapes, slide shows and tapes are used. The usual procedure to carry out the listening comprehension activities is to provide the students with a vocabulary list of the most difficult words and the main ideas to be dealt with prior to the presentation, in order to familiarize the students with the contents of the video, slide show or tape. Sometimes, even the script is given to the students. The discussion of the ideas and vocabulary can be done in class before, at the beginning of the listening comprehension lesson or as homework. Then the video-tape, slide show or tape is presented, the teacher stopping and rewinding when necessary in order to discuss aspects of the material that need clarification or explanation. When using tapes, the students can listen to the text and read it at the same time, a procedure that helps them to learn correct pronunciation and stress of words and to read by sense-groups. The contents of the presentation can be discussed through open-ended and wh questions. Several exercises (matching, fill-in-the-blanks, outlines, diagrams, tables) are provided to reinforce the contents of the lesson.

In English for Biologists, visitors in class constitute a resource in listening comprehension. A specialist in the field is invited to give a lecturette and the students take notes. Difficult terms and information are written on the blackboard as well as a brief outline of the presentation as the specialist procedes with his/her talk. After the presentation, comprehension is usually checked through general discussion questions.

Through the activity of listening comprehension, most of the reading skills are practiced to a lesser or greater extent, but the following are most common: distinguishing main ideas from supporting details, understanding conceptual meaning, recognizing transition elements of discourse, understanding the implicit information through inferences, distinguishing among inferences, opinions and facts, and evaluating the information presented.

5.2.5. Vocabulary

English for Mathematics, Computer Science and Electronic Engineering place a considerable emphasis on technical vocabulary. The most common ways of dealing with vocabulary are through word endings, analysis in context, contextual clues, antonyms, synonyms, fill-in-the-blanks, dictionary exercises, glossaries and multiple choice questions on vocabulary incoorporated at the margins of the reading.

5.2.6. Grammar

Grammar per se is not dealt with in our ESP courses. Grammatical explanations are given when the students confront structural difficulties that impede comprehension of the text.

5.2.7. Content

Considering the fact that our ESP courses at the USB are given within the specialty, content plays an important role and the teacher's goal is to achieve an integration of language and content through discussion questions in class, analysis of vocabulary and by reccurring to more advanced students when content explanations are needed.

5.2.8. Flexibility in the Methodology of our ESP courses

As was mentioned before, the methodology to be employed in the ESP courses has to be flexible enough to disregard traditional taboos in English language teaching, such as the use of the students' native language. In our ESP courses, the teacher uses Spanish in class usually in order to explain and clarify doubts when students have difficulties in comprehending the spoken discourse in English. The students are frequently allowed to reccur to Spanish to explain, expand, clarify ideas and exemplify when necessary. The teacher's flexibility is also extended to the tolerance of linguistic errors when the students write or speak in English, as long as communication is not impeded. Such errors are always corrected but not penalized. The ESP teacher also allows for different interpretations of the information in the text if the text lends itself to this. However, the general tendency is to point out to the students the best interpretation.

5.2.9. Evaluations

The methodology used in the different ESP courses is usually related to the evaluations administered in class, i.e., the types of exercises are similar in both instances.

5.2.10. Homework

To a lesser (Mathematics/ Architecture) or greater extent (Electronic Engineering, Urban Planning, Biology and Computer Science) homework is a common activity in all the ESP courses. The readings of the unit are assigned to be read outside the class in order to gain time and analyze the text more efficiently during the limited class time. Exercises are given to prepare the students for class activities and familiarize them with the contents of the following lesson. Assignments may also be provided in order to reinforce the contents of a lesson or unit.

6. Conclusions

After the questionnaires were processed, the conclusion was reached that , although the instrument applied was very useful in gathering a considerable amount of information, it is necessary to complete and clarify certain points through interviews with the teachers of the courses. The methodology used in ESP courses is the part of the project which has been least studied and discussed by the research group. Thus, it is recommendable that a series of workshops be organized in order to share ideas and evaluate the methodologies presently used in the different ESP courses, as well as to design new techniques for teaching advanced reading.

Throughout this paper, one can notice a close relationship

Broadly speaking, the common technique in the teaching of reading is that of analyzing a text by means of exercises that involve students in task-oriented activities of the specialty. M. L. Tickoo points out that 'what appears to matter now is what the materials producer does with the text", while before it seemed more important for the student to process as many texts as possible. Thus, "the relationship between subject matter and its linguistic exploitation has become totally reversed" (Tickoo 1981, p. 235). As a result, the student knows a lot about the theory but does not really know how to put it into practice (Tickoo 1981, p. 236). Tickoo concludes that it is necessary to find "a golden mean between content and technique, the desirable ratio and relationship between them ..." (Tickoo 1981, p. 237). We think that it would be convenient to evaluate our methodologies taking into account these considerations.

In ESP courses, when the main objective is the teaching of reading skills, the teacher experiences a certain degree of frustration in having to limit his/her teaching to one aspect of the target language. "By concentrating on reading only, some of these courses force the teacher to a sort of verbal inaction where formerly he may have indulged in hour-long lectures" (Tickoo 1981, p. 234). On the other hand, when teaching these courses, the teacher has to deal with higher-order skills of reading applied to a wide range of specialist subject areas (Tickoo 1981, p. 234).

Finally, since the literature in the field of ESP has not yet provided set guidelines regarding methodology, we consider that this aspect of ESP teaching constitutes a rich source of future research within the project.

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APPENDIX I

METHODOLOGY QUESTIONNAIRE

NAME : ______________________

COURSE : ______________________

INSTRUCTIONS : a) you may choose more than one answer; b) after each section, there will be space for you to include any additional comments; c) the scale used to determine the frequency of use is as follows :

how often ? ... always 1 sometimes 2 rarely 3

I. UNIT ORGANIZATION : What criteria do you take into account to organize your teaching units ?

	1	2	3
a. around a theme			
b. according to language functions			
c. in relation to the vocabulary of the text			
d. degree of difficulty of the discourse			
e. other :			

II. UNIT ACTIVITIES : How do you organize the activities of the teaching units ?

	1	2	3
a. pre-reading activities			
b. reading activities			
c. post-reading activities			
d. other :			

(after indicating which ones you do, please refer to the corresponding sections)

.../...

III. LESSON PLAN :For your everyday lesson hour do you...

1	2	3

a. use a detailed lesson plan ?
b. use a general lesson plan ?
c. just follow the content of the "gufa" ?
d. other :

IV. PRE-READING ACTIVITIES :

A) For what purpose do you use the pre-reading activities ?

1	2	3

a. to motivate the students at the beginning of the unit.
b. to introduce the general theme of the reading.
c. to deal with the difficult vocabulary present in the reading.
d. to deal with difficult grammatical structures.
e. to familiarize students with the concepts and ideas that will appear in the reading.
f. to teach any of the objectives of the course (refer to appendix "A" for a list of the general common objectives of the ESP section and indicate -with numbers- which of these objectives you try to teach in this stage).

Objectives :

g. other : ______________________

B) What kind of activities do you have in this pre-reading stage ? How often ?

1	2	3

a. You ask students to scan for specific information.
b. you ask them to skim for the general idea.
c. you ask students to read the text in order to discuss the content through general discussion or open-ended questions.
d. you deal with vocabulary :

	1	2	3
-d1. you give students a list of the difficult words and ask them to look them up in a dictionary			
-d2. you provide them with excerpts of the reading with the difficult words underlined and ask them to guess the meaning from context.			
-d3. you ask them to provide synonyms or antonyms of these words.			
-d4. you give students the difficult words and next to them you provide the same words in a different context (from the original text) which will clarify their meaning.			
-d5. other :			
e. you deal with other aspects of the reading such as : -e1. connectors...(explain how you go about it)			
-e2. contextual clues			
-e3. grammatical structures			
-e4. other :			

C) In your teaching units how do you sequence the activities mentioned before ? (Use the same letters provided and put them in chronological sequence).

D) How do you carry out these activities ? How often ?

	1	2	3
a. group work			
b. individually			
c. other :			

E) In this pre-reading stage, do you use...? How often ?
(explain after each material selected, th teaching strategies used)

	1	2	3
a. films			
b. video			
c. slide show			
d. pictures			
e. realia			

	1	2	3
f. charts			
g. O-h projector			
h. blackboard			
i. other :			

F) In relation to the reading and post-reading activities, what proportion of time do you assign to the pre-reading activities ?
a. 25% b. 50% c. 75% d. other :

V. READING ACTIVITIES :

A) What kind of activities do you have in the reading stage ?
How often ?

(Explain how you go about it in the spaces provided; please be brief)

	1	2	3
a. skimming			
b. scanning			
c. content comprehension			
d. discourse comprehension (anaphora, connectors, etc)			
e. information transfer			
f. summary			
g. synthesis			
h. expansion			
other :			

B) How do you sequence the activities mentioned before ? (use the same letters) :

C) How do you carry out these activities ? How often ?

	1	2	3
a. group work			
b. individually			
c. other :			

.../...

D) In this stage, do you use...?
(Include the teaching strategies used)

How often ?

	1	2	3
a. films			
b. video			
c. slide show			
d. pictures			
e. realia			
f. charts			
g. O-h projector			
h. blackboard			
i. other :			

E) In relation to the pre-reading and post-reading stages, what proportion of time do you assign to the reading activities ?
a. 25% b. 50% c. 75% d. other ;

F) Using appendix "A", indicate which activities (refer to the ones listed under V.A) you use to develop these objectives. Just enter the number of the objective in the space provided.

VI. POST-READING ACTIVITIES :

A) For what purpose do you use post-reading activities ?

How often ?

a. to reinforce :

	1	2	3
-a1. vocabulary			
-a2. reading skills dealt with previously			
-a3. grammatical aspects			
-a4. concepts related to the content			
-a5. other :			
b. to expand any of the concepts dealt with in the reading			
c. to summarize the contents of the unit			
d. other :			

B) What kind of activities do you have in this post-reading stage ?

How often ?

	1	2	3
a. film or video			
b. an outline			
c. a table			
d. discussion questions (open-ended, wh/, general)			
e. research projects			
f. homework			
g. summary			
h. fill-in-the-blank exercises with key words			
i. other			

C) If you use more than one activity in the post-reading stage in the same unit, how do you sequence them ? (Use the same letters)

D) How do you carry out these activities ?

How often ?

	1	2	3
a. group work			
b. individually			
c. lockstep			
e. other			

E) In relation to the pre-reading and reading stages, what proportion of time do you assign to the post-reading activities ?

a. 25% b. 50% c. 75% d. other :

F) In this stage, do you use ...?

(explain the teaching strategies used)

How often ?

	1	2	3
a. films			
b. video			
c. slide show			

.../...

	1	2	3
d. pictures			
e. realia			
f. charts			
g. o-h projector			
h. blackboard			
i. other			

VII. LISTENING COMPREHENSION :

A) Knowing that this is a secondary skill in our ESP courses, how much emphasis do you give to it ?

a. very much   b. some   c. little   d. other

B) Explain the teaching strategies used to develop listening comprehension through the following resources : How often ?

	1	2	3
a. tapes			
b. slides			
c. video			
d. films			
e. visitors in class			
f. other :			

C) Using appendix "A" as a reference, indicate (using only the objective's number) the objectives developed through listening comprehension :

VIII. VOCABULARY :

A) How much emphasis do you give to vocabulary activities ?

a. very much   b. some   c. little   d. other

B) How do you deal with vocabulary as part of the reading activities ? (teaching strategies and resources used)

.../...

IX. GRAMMAR :

A) How much emphasis do you give to the teaching of grammar ?

a. very much b. some c. little d. other

B) Indicate the teaching strategies and the resources used to develop it :

X. CONTENT :

A) How much emphasis do you place on the content of the readings ?

a. very much b. some c. little d. other :

B) How do you deal with it ? (resources and strategies used) :

XI. USE OF SPANISH :

A) From the point of view of the teacher, you use it to :

a. expand
b. explain
c. clear doubts
d. give examples
e. other :

B) How often do you use Spanish in the class ?

a. always b. sometimes c. rarely

C) From the point of view of the student, you let students use Spanish to :

a. expand
b. explain
c. clear doubts
d, give examples
e. other :

D) How often do the students use Spanish ?

a. always b. sometimes c. rarely

XII. TOLERANCE OF LINGUSITIC ERROR : (explain)

a. when the students speak
b. when the students write

.../...

XIII. ACCEPTANCE OF DIFFERENT INTERPRETATIONS WHEN THE STUDENT READS :

YES NO

(explain)

XIV. How does your methodology relate to the type of evaluation administered ? Explain :
(i.e. do you use the same kind of exercises that you use in class ?)

XV. HOMEWORK :

A) Explain forwhat purpose you use homework in your class and how much emphasis you give to it :

READING OBJECTIVES

1. Skimming
2. Scanning
3. Distinguishing main ideas from supporting details
4. Recognizing the structure and vocabulary typical of the rhetorical functions dealt with in your course.
5. Identifying the main components of written discourse : introduction, body and conclusion.
6. Recognising indicators in discourse for :
    - 6.1 introducing and idea
    - 6.2 developing an idea
    - 6.3 transition to another idea
    - 6.4 concluding an idea
    - 6.5 emphasizing a point
    - 6.6 clarification of a point already made
    - 6.7 anticipating an objection or contrary view.
7. Understanding the relations between parts of a sentence, a paragraph and a text through lexical and grammatical cohesion devices.
8. Deducing the meaning of unfamiliar lexical items through :
    - 8.1 understanding word formation (stems, roots, affixation)
    - 8.2 contextual clues
9. Understanding conceptual meaning, specially :
    - 9.1 quantity and amount
    - 9.2 comparison, degree
    - 9.3 location and direction
    - 9.4 cause, result, purpose
    - 9.5 definiteness, indefiniteness
    - 9.6 time (specially tense and aspect)
    - 9.7 means, instruments, reason, condition, contrast.
10. Classifying the information contained in a text, distinguishing what is asserted from what is exemplified.
11. Reconstructing the formation or ideas explicitly stated in a text by doing charts, summaries or synthesis.
12. Reformulating the information or ideas explicitly stated in a text, expanding or synthesizing according to the case.
13. Understanding the implicit information of a text through the inference of :
    - 13.1 main ideas
    - 13.2 supporting details
    - 13.3 sequence
    - 13.4 comparisons (similarities and/or differences)
    - 13.5 cause, effect
    - 13.6 prediction of outcomes
14. Distinguishing among inferences, opinions and facts.
15. Evaluating the information of a text by deciding whether the information presented is valid, accurate and adequate for a specific purpose.

CONCLUSIONS

1. A Final Look at our Hypothesis: "Towards a Systematized Approach to the Design of ESP Courses at the USB"

We consider this project to be of a descriptive rather than prescriptive nature. A first question to consider with regard to the original hypothesis is the objective of the investigation as a whole. Was the systematization of ESP course design at the USB achieved?

On the surface there arose a wholehearted "yes". The modus operandi was common for all six courses; all teacher/planners used the theoretical framework and background established from the outset of the project. Nevertheless, in taking a closer look at the systematization of design, it was recognized that, in accordance with the specificity of ESP, the individual characteristics of each course in relation to needs, time limitation factors and the teachers themselves had to be taken into account. In this respect, although we have adopted certain aspects of the communicative framework to a greater or lesser degree, total standardization has not been the desired end of the project. In short, the theoretical basis and the methodology followed were common denominators whereas the actual product (i.e. materials developed by the teacher/planners) was specific to each individual course.

2. An Appreciation of the Methodology used to carry out the ESP Project

The steps followed in order to carry out the ESP Section project consisted of an internal seminar with regular meeting sessions, which demanded a great deal of group effort and time on the part of participants who had simultaneously to fulfill the multiple role of teachers, planners and researchers. As a consequence, it was necessary to distribute tasks soon after completion of the the objectives stage. In spite of this, the weekly (and later bi-weekly) meetings were held with the goal of maintaining the group effort and the continuous feedback which was characteristic of the project from its inception. An original outline consisting of work areas to be dealt with and dates for completion of stages, although extended in terms of areas to be covered (e.g. long term evaluation of course materials was soon recognized as a necessary step to be added to our original work outline), was followed step-by-step and satisfied within the time limit of one year set from the starting point in April 1980. As each stage of the project was completed, progress reports were drawn up.

3. Suggestions for Future Research

Due to the changing character of the first year program, it will be necessary for the ESP Section to take into account the new student needs that will accompany the learner to our courses in the future. It is advisable as well as desirable to redesign aspects of our needs analysis instruments, apply them to our new participants, and analyze them to see how the results compare with our ESP programs at present. As an extension of this it may also be appropriate to use our new instruments with graduating students in order to obtain information on needs seen on a post-academic level.

Future research in the specific areas detailed in this project can be found at the end of the respective chapters. Nevertheless, it is useful at this point to mention aspects that affect the overall project, such as the necessity for long-term evaluation to determine how the courses have served student needs in subsequent years of specialized study. In the same area of materials evaluation, verification of whether the courses have accomplished what they set out to do, by means of pre and post testing students, would supply specific information on what the students have learned. With regards to testing, it would be interesting to ascertain the best way to test stated objectives within the communicative approach. This particular area of testing has a wide scope open for research.

The revising of aspects of the needs analysis framework, objectives and so forth, reveals a desire within our working group to investigate the area of teaching strategies more closely. A need has been felt to meet at regular intervals to share ideas on methodology acquired through research and experience so as to promote the achievement of the various objectives in diverse new ways. Similarly, it is imperative that more contact be established with specialists in each field. This could be in the form of teacher guidance concerning the specialized subject matter dealt with in the courses, or simply recurring to these people as a means of achieving a more varied methodology (i.e. to give short lectures on given topics of interest and concern to the students).

Several possible areas of research have arisen as individual projects. For example, the development of technical vocabulary frequency lists for each of the six fields of ESP we are concerned with at the USB. These lists would then be compared for the purpose of determining lexical items common to all ESP courses. Another involves a question that many in the field of ESP have probably asked themselves: How effective is a course as specific as an ESP course in comparison with a four skills course? This would entail giving two different courses concurrently- our ESP courses geared towards reading and control groups with a four skills general (scientific) approach. Pre and post testing of each group would be followed by long term evaluations of student competence.

4. A Final Comment of the Experience

In these concluding remarks would like to share some of our experiences in teaching ESP courses. One difficulty, which has been overcome to a certain extent, is that of separating content from the language used to portray meaning. This was compounded by the fact that we are not specialists in the scientific fields. Yet, experience acquired from teaching ESP courses has allowed us to handle this situation with a greater flexibility.

On the one hand, ESP is a practical approach which allows us to focus on the specific aspects of language learning necessary for our students to master, in our case reading, but which, on the other hand, can be hard on the teacher. Although the use of audio-visuals and listening comprehension liven up the classroom, the teacher is at times limited in the types of reading activities and responses he/she can elicit from the students (e.g. he/she cannot require the student to produce in English). Along the same vein, there is a feeling of bombarding the student with reading comprehension.

A further question: How does one teach reading in EFL? It is very different from teaching pronunciation where the teacher can correct the students and gradually bring them to a greater level of competence. It is almost as if the teacher is hoping that the various reading activities applied in class will light up some internal process within the students' heads that will cause them to read. It is, in a general way, felt that reading cannot be taught; the students learn it somehow, and that all in all, we teach by intuition. Nevertheless, due to the fact that our approach is eclectic, it is not imperative that we follow the strict norms of ESP. We can refer to other approaches to teaching that are effective for attaining our ends.